

**MERIT 10 CB28UH, ELITE 10 CB29M and ELITE 12 CB30M SERIES UNITS
INCLUDING ECB29 ELECTRIC HEAT**

The Merit 10 CB28UH, Elite 10 CB29M and Elite 12 CB30M are high efficiency blower coils. Several models are available in sizes ranging from 1-1/2 through 5 tons (5.3 through 17.6 kW). The CB28UH is an upflow horizontal unit and the CB29M and CB30M are multi-position (upflow, downflow or horizontal) units. The units come with a factory installed check and expansion valve for cooling or heat pump applications.

CB28UH and CB29M series units are designed to be matched with the 10 SEER air conditioner and heat pump line, and the CB30M series units are designed to be matched with the 12 and 13 SEER air conditioner and heat pump lines. While these blower coil units are designed to be primarily matched with these outdoor units, they may be matched with other air conditioners or heat pumps as noted in the rating information.

ECB29 electric heat, in several voltages and kW sizes, can be field installed in the CB28UH, CB29M and CB30M cabinets.

Information contained in this manual is intended for use by experienced HVAC service technicians only. All specifications are subject to change. Procedures outlined in this manual are presented as a recommendation only and do not supersede or replace local or state codes.

⚠ IMPORTANT

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

⚠ WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

**CB30M****Table of Contents**

CB28UH	
Specifications	2
Blower Data	3
CB29M	
Specifications	5
Blower Data	6
CB30M	
Specifications	9
Blower Data	10
Parts Arrangement	13
I Application	15
II Unit Components	15
III Optional Electric Heat	17
IV Configuration Modification	35
V Start Up	38
VI Typical Operating Characteristics	39
VII Maintenance	40
VIII Wiring Diagrams	41

SPECIFICATIONS -CB28UH

General Data		Model Number	CB28UH-018/024	CB28UH-030	CB28UH-036
		Nominal tonnage	1.5 - 2	2.5	3
Connections	Suction (vapor) line (o.d.) - in. (mm) sweat		5/8 (16)	3/4 (19)	3/4 (19)
	Liquid line (o.d.) - in. (mm) sweat		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Condensate - in. (mm) fpt		(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)
Evaporator Coil	Net face area - ft. ² (m ²)		3.11 (0.29)	3.56 (0.33)	4.44 (0.41)
	Tube outside diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows		2	2	2
	Fins per inch (fins per m)		14 (551)	14 (551)	14 (551)
Blower	Wheel nominal diameter x width - in. (mm)		10 x 7 (254 x 178)	10 x 7 (254 x 178)	10 x 8 (254 x 203)
	Blower motor output - hp (W)		1/5 (149)	1/3 (249)	1/3 (249)
¹ Filters	Size of filter - in. (mm)		15 x 20 x 1 (381 x 508 x 25)	15 x 20 x 1 (381 x 508 x 25)	20 x 20 x 1 (508 x 508 x 25)
Electrical Data (60hz)	Voltage - phase		208/230 - 1	208/230 - 1	208/230-1
	Minimum circuit ampacity (unit only)		2	3	3
	² Maximum overcurrent protection (unit only)		15	15	15
Shipping Data -1 package		lbs. (kg)	121 (55)	123 (56)	156 (71)
Optional Accessories - Must Be Ordered Extra					
Electric Heat			2.5 to 30 kW - See Electric Heat Data tables		
Filter Base	3 in. (76 mm) base height	Catalog Number	32X54	32X54	32X55
	1 or 2 in. thick filters (25 or 51 mm)	Model Number	ACE1620-3	ACE1620-3	ACE2020-3
	6 in. (152 mm) base height	Catalog Number	62N00	62N00	62N01
	1, 2, or 4 in. thick filters (25, 51, or 102 mm)	Model Number	ACE1620-6	ACE1620-6	ACE2020-6
	Cabinet Size W x D - in. (mm)		17-3/8 x 22 (441 x 559)	17-3/8 x 22 (441 x 559)	21-3/8 x 22 (543 x 559)
	Size of field provided filter - in. (mm)		16 x 20 (406 x 508)	16 x 20 (406 x 508)	20 x 20 (508 x 508)
Side Return Unit Stand (Up-Flow Only) - Ship. weight - lbs. (kg)			45K31 - 5 (2)	45K31 - 5 (2)	45K32 - 6 (3)
Single Point Power Source Control Box (2 or 3 circuits)			- - -	21H39 - 5 (2)	21H39 - 5 (2)
Shipping weight - lbs. (kg)					
Wall Hanging Bracket Kit (Up-Flow Only) - Ship. wt. - lbs. (kg)			45K30 - 3 (1)	45K30 - 3 (1)	45K30 - 3 (1)

¹ One disposable frame type filter furnished.

² HACR type breaker or fuse.

General Data		Model Number	CB28UH-042	CB28UH-048	CB28UH-060
		Nominal tonnage	3.5	4	5
Connections	Suction (vapor) line (o.d.) - in. (mm) sweat		7/8 (22.2)	1-1/8 (28)	1-1/8 (28)
	Liquid line (o.d.) - in. (mm) sweat		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Condensate - in. (mm) fpt		(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)
Evaporator Coil	Net face area - ft. ² (m ²)		4.44 (0.41)	5.0 (0.46)	5.0 (0.46)
	Tube outside diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows		3	3	3
	Fins per inch (fins per m)		12 (472)	12 (472)	12 (472)
Blower	Wheel nominal diameter x width - in. (mm)		10 x 9 (254 x 229)	11-1/2 x 9 (292 x 229)	11-1/2 x 9 (292 x 229)
	Blower motor output - hp (W)		1/2 (373)	3/4 (560)	3/4 (560)
¹ Filters	Size of filter - in. (mm)		20 x 20 x 1 (508 x 508 x 25)	20 x 22 x 1 (508 x 559 x 25)	20 x 22 x 1 (508 x 559 x 25)
Electrical Data (60hz)	Voltage - phase		208/230 - 1	208/230 - 1	208/230 - 1
	Minimum circuit ampacity (unit only)		6	6	6
	² Maximum overcurrent protection (unit only)		15	15	15
Shipping Data -1 package		lbs. (kg)	160 (73)	181 (83)	181 (83)
Optional Accessories - Must Be Ordered Extra					
Electric Heat			2.5 to 30 kW - See Electric Heat Data tables		
Filter Base	3 in. (76 mm) base height	Catalog Number	32X55	32X55	32X55
	1 or 2 in. thick filters (25 or 51 mm)	Model Number	ACE2020-3	ACE2020-3	ACE2020-3
	6 in. (152 mm) base height	Catalog Number	62N01	62N01	62N01
	1, 2, or 4 in. thick filters (25, 51, or 102 mm)	Model Number	ACE2020-6	ACE2020-6	ACE2020-6
	Cabinet Size W x D - in. (mm)		21-3/8 x 22 (543 x 559)	21-3/8 x 22 (543 x 559)	21-3/8 x 22 (543 x 559)
	Size of field provided filter - in. (mm)		20 x 20 (508 x 508)	20 x 20 (508 x 508)	20 x 20 (508 x 508)
Side Return Unit Stand (Up-Flow Only) - Ship. weight - lbs. (kg)			45K32 - 6 (3)	45K32 - 6 (3)	45K32 - 6 (3)
Single Point Power Source Control Box (2 or 3 circuits)			21H39 - 5 (2)	21H39 - 5 (2)	21H39 - 5 (2)
Shipping weight - lbs. (kg)					
Wall Hanging Bracket Kit (Up-Flow Only) - Ship. wt. - lbs. (kg)			45K30 - 3 (1)	45K30 - 3 (1)	45K30 - 3 (1)

¹ One disposable frame type filter furnished.

² HACR type breaker or fuse.

BLOWER DATA - CB28UH

CB28UH-018/024 BLOWER PERFORMANCE (208/230V)										
External Static Pressure in. w.g. Pa		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
		cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1025	485	375	885	415	305	690	325	240
.05	10	1010	480	370	880	415	305	690	325	240
.10	25	995	470	365	870	410	300	685	325	240
.15	35	975	460	360	855	405	295	680	320	235
.20	50	955	450	350	840	395	290	670	315	230
.25	60	935	440	345	825	390	280	660	310	230
.30	75	910	430	335	805	380	275	645	305	225
.40	100	855	405	320	750	355	255	605	285	210
.50	125	790	375	305	690	325	240	555	260	195
.60	150	720	340	290	615	290	220	495	235	180
.70	175	635	300	270	530	250	205	420	200	165
.75	185	595	280	260	485	230	195	380	180	160

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB28UH-030 BLOWER PERFORMANCE (208/230V)										
External Static Pressure in. w.g. Pa		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
		cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1210	570	445	1105	520	400	980	465	370
.05	10	1200	565	445	1100	520	395	980	460	370
.10	25	1185	560	440	1095	515	390	975	460	365
.15	35	1170	550	430	1080	510	385	965	455	360
.20	50	1150	540	425	1065	500	375	955	450	350
.25	60	1125	530	420	1045	495	370	940	445	340
.30	75	1100	520	410	1020	480	360	920	435	330
.40	100	1035	490	390	960	455	335	870	410	310
.50	125	955	450	370	890	420	315	805	380	285
.60	150	865	410	350	800	380	290	725	345	260
.70	175	760	360	325	695	330	265	635	300	235
.75	185	705	335	315	640	300	250	580	275	225

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB28UH-036 BLOWER PERFORMANCE (208/230V)										
External Static Pressure in. w.g. Pa		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
		cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1495	705	650	1110	525	510	895	420	415
.05	10	1485	700	640	1120	530	510	910	430	415
.10	25	1475	695	625	1130	530	510	920	435	410
.15	35	1460	690	615	1130	535	510	925	435	400
.20	50	1445	680	600	1130	535	505	930	440	390
.25	60	1425	670	585	1130	535	475	930	440	380
.30	75	1405	660	570	1125	530	465	925	435	370
.40	100	1355	640	540	1100	520	435	905	425	350
.50	125	1295	610	510	1060	500	405	870	410	330
.60	150	1230	580	480	1010	475	380	820	385	310
.70	175	1150	545	450	945	445	350	750	355	290
.75	185	1110	525	435	905	430	335	715	335	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB28UH-042 BLOWER PERFORMANCE (208/230V)										
External Static Pressure in. w.g. Pa		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
		cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1750	825	725	1495	705	580	1250	590	520
.05	10	1740	820	720	1495	705	580	1255	595	520
.10	25	1725	815	710	1490	700	575	1255	590	500
.15	35	1700	805	700	1475	695	565	1250	590	490
.20	50	1675	790	690	1460	690	550	1235	585	475
.25	60	1645	775	680	1435	675	535	1220	575	460
.30	75	1610	760	665	1405	665	520	1200	565	445
.40	100	1525	720	635	1335	630	490	1140	540	415
.50	125	1420	670	605	1245	585	455	1065	505	385
.60	150	1295	610	570	1135	535	420	970	455	355
.70	175	1155	545	535	1000	470	380	850	400	325
.80	200	995	470	495	850	400	345	715	340	295
.85	210	905	430	475	765	360	325	640	300	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

BLOWER DATA - CB28UH

CB28UH-048 BLOWER PERFORMANCE (208/230V)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2050	970	1005	1785	845	800	1590	750	660
.05	10	2030	955	990	1770	835	795	1570	740	655
.10	25	2005	945	980	1750	825	785	1550	735	650
.15	35	1975	935	970	1730	815	775	1530	725	645
.20	50	1950	920	955	1710	805	765	1510	715	640
.25	60	1920	905	940	1685	795	755	1490	705	635
.30	75	1890	890	930	1660	785	745	1465	690	630
.40	100	1820	860	900	1605	760	725	1415	670	615
.50	125	1745	825	875	1545	730	705	1365	645	600
.60	150	1665	785	845	1485	700	680	1305	615	580
.70	175	1580	745	820	1415	665	660	1245	585	555
.75	185	1535	725	805	1375	650	650	1210	570	540

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB28UH-060 BLOWER PERFORMANCE (208/230V)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps														
		High			Medium-High			Medium			Medium-Low			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2245	1060	1080	2130	1005	930	2000	945	820	1800	850	695	1565	740	570
.05	10	2220	1045	1070	2105	995	920	1980	935	815	1780	840	690	1550	730	570
.10	25	2190	1035	1060	2080	985	915	1955	925	805	1760	830	680	1535	725	565
.15	35	2165	1020	1050	2055	970	905	1935	910	795	1735	820	670	1520	715	560
.20	50	2135	1005	1040	2030	960	895	1910	900	785	1715	810	665	1500	710	555
.25	60	2105	995	1030	2000	945	885	1880	890	780	1690	795	655	1480	700	550
.30	75	2070	980	1020	1970	930	875	1855	875	770	1665	785	645	1460	690	540
.40	100	2005	945	995	1910	900	855	1795	850	750	1610	760	630	1415	670	530
.50	125	1935	910	975	1845	870	830	1735	820	730	1555	735	610	1365	645	515
.60	150	1855	875	950	1775	835	810	1665	785	710	1495	705	595	1310	615	500
.70	175	1775	840	925	1695	800	785	1595	755	690	1430	675	580	1245	590	485
.80	200	1690	800	900	1615	765	755	1520	715	665	1365	645	560	1180	555	470
.90	225	1600	755	875	1530	725	730	1440	680	645	1290	610	545	1105	520	455
.95	235	1555	735	865	1490	700	715	1395	660	635	1255	590	535	1070	505	450

NOTE — All air data is measured external to unit with air filter in place. Electric heaters have no appreciable air resistance.

SPECIFICATIONS -CB29M

Model Number			CB29M-21/26	CB29M-31	CB29M-41	CB29M-46	CB29M-51	CB29M-65
Evaporator Coil	Net face area — ft. ² (m ²)		3.11 (0.29)	3.56 (0.33)	4.44 (0.41)	4.44 (0.41)	5.0 (0.46)	5.0 (0.46)
	Tube outside diameter — in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	Number of rows		2	2	2	3	3	3
	Fins per inch (fins per m)		14 (551)	14 (551)	14 (551)	12 (472)	12 (472)	12 (472)
	Suct. (vapor) line conn. - in. (mm) sweat		5/8 (16)	3/4 (19)	3/4 (19)	7/8 (22.2)	1-1/8 (28)	1-1/8 (28)
	Liquid line conn. — in. (mm) sweat		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
Condensate drain connection (fpt) — in. (mm)			(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)
Nominal cooling capacity — tons (kW)			1-5 - 2 (5.3 - 7.0)	2.5 (8.8)	3 (10.6)	3.5 (6.3)	4 (14.1)	5 (17.6)
Refrigerant			HCFC-22					
Blower wheel nominal diameter x width — in. (mm)			10 x 7 (254 x 178)	10 x 7 (254 x 178)	10 x 8 (254 x 203)	10 x 9 (254 x 229)	11-1/2 x 9 (292 x 229)	11-1/2 x 9 (292 x 229)
Blower motor output — hp (W)			1/5 (149)	1/3 (249)	1/3 (249)	1/2 (373)	3/4 (560)	3/4 (560)
††Number and size of filters	in.	(1) 15 x 20 x 1			(1) 20 x 20 x 1			
	mm	(1) 381 x 508 x 25			(1) 508 x 508 x 25			
Electrical characteristics (60hz)			208/230v-1ph		208/230v-1 ph **460v-3 ph	208/230v-1 ph	208/230v - 1ph **460v - 3 ph ***575v - 3 ph	
Shipping weight — lbs. (kg) 1 package			121 (55)	123 (56)	156 (71)	160 (73)	181 (83)	181 (83)
↕ Optional Accessories (Must Be Ordered Extra) ↕								
Side Return Unit Stand (Up-Flow Only)	Catalog number		45K31		45K32			
	Ship. wt. - lbs. (kg)		5 (2)		6 (3)			
Wall Hanging Bracket Kit - Shipping weight - lbs. (kg)			45K30 - 3 (1) (Up-Flow Only)					
Down-Flow Combustible Base - Ship. wt. - lbs. (kg)			34J72 - 8 (4)		34J73 - 8 (4)			
Electric Heat Capacity (1 phase)	ECB29-2.5	*Output - Btuh (kW)	9,500 (2.8)	10,000 (2.9)	----	----	----	----
		†A.F.U.E.	100%	100%	----	----	----	----
	ECB29-5, ECB29-5CB	*Output - Btuh (kW)	18,000 (5.3)	19,000 (5.6)	19,000 (5.5)	20,000 (5.8)	20,000 (5.8)	----
		†A.F.U.E.	100%	100%	100%	100%	100%	----
	ECB29-8, ECB29-8CB	*Output - Btuh (kW)	28,000 (8.2)	29,000 (8.5)	29,000 (8.5)	30,000 (8.7)	30,000 (8.7)	31,000 (9.1)
		†A.F.U.E.	100%	100%	100%	100%	100%	100%
	ECB29-10, ECB29-10CB	*Output - Btuh (kW)	35,000 (10.3)	36,000 (10.5)	36,000 (10.5)	37,000 (10.8)	37,000 (10.8)	37,500 (10.9)
		†A.F.U.E.	100%	100%	100%	100%	100%	100%
	ECB29-12.5CB	*Output - Btuh (kW)	----	44,500 (13.0)	44,500 (13.0)	45,500 (13.3)	45,500 (13.3)	46,000 (13.5)
		†A.F.U.E.	----	100%	100%	100%	100%	100%
	ECB29-15CB	*Output - Btuh (kW)	----	53,000 (15.5)	53,000 (15.5)	54,000 (15.8)	54,000 (15.8)	55,000 (16.1)
		†A.F.U.E.	----	100%	100%	100%	100%	100%
	ECB29-20CB	*Output - Btuh (kW)	----	----	70,000 (20.5)	71,000 (20.8)	71,000 (20.8)	72,000 (21.1)
		†A.F.U.E.	----	----	100%	100%	100%	100%
	ECB29-25CB	*Output - Btuh (kW)	----	----	----	----	88,000 (25.8)	89,000 (26.1)
		†A.F.U.E.	----	----	----	----	100%	100%
	ECB29-30CB	*Output - Btuh (kW)	----	----	----	----	----	106,000 (31.0)
		†A.F.U.E.	----	----	----	----	----	100%

†Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and according to FTC labeling regulations.

††CB29M-21/26 thru CB29-46 furnished with disposable frame type filter, CB29M-51 and CB29M-65 furnished with cleanable polyurethane frame type filter.

*Includes additional blower motor heat capacity.

**Blower motor is 460v single phase.

***Blower motor is 460v single phase. 575v electric heaters are shipped with step-down transformer for use with 460v units (CB29M-51 & CB29M-65 models only).

BLOWER DATA - CB29M

CB29M-21/26 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1025	485	375	885	415	305	690	325	240
.05	10	1010	480	370	880	415	305	690	325	240
.10	25	995	470	365	870	410	300	685	325	240
.15	35	975	460	360	855	405	295	680	320	235
.20	50	955	450	350	840	395	290	670	315	230
.25	60	935	440	345	825	390	280	660	310	230
.30	75	910	430	335	805	380	275	645	305	225
.40	100	855	405	320	750	355	255	605	285	210
.50	125	790	375	305	690	325	240	555	260	195
.60	150	720	340	290	615	290	220	495	235	180
.70	175	635	300	270	530	250	205	420	200	165
.75	185	595	280	260	485	230	195	380	180	160

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-31 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1210	570	445	1105	520	400	980	465	370
.05	10	1200	565	445	1100	520	395	980	460	370
.10	25	1185	560	440	1095	515	390	975	460	365
.15	35	1170	550	430	1080	510	385	965	455	360
.20	50	1150	540	425	1065	500	375	955	450	350
.25	60	1125	530	420	1045	495	370	940	445	340
.30	75	1100	520	410	1020	480	360	920	435	330
.40	100	1035	490	390	960	455	335	870	410	310
.50	125	955	450	370	890	420	315	805	380	285
.60	150	865	410	350	800	380	290	725	345	260
.70	175	760	360	325	695	330	265	635	300	235
.75	185	705	335	315	640	300	250	580	275	225

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-41 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1495	705	650	1110	525	510	895	420	415
.05	10	1485	700	640	1120	530	510	910	430	415
.10	25	1475	695	625	1130	530	510	920	435	410
.15	35	1460	690	615	1130	535	510	925	435	400
.20	50	1445	680	600	1130	535	505	930	440	390
.25	60	1425	670	585	1130	535	475	930	440	380
.30	75	1405	660	570	1125	530	465	925	435	370
.40	100	1355	640	540	1100	520	435	905	425	350
.50	125	1295	610	510	1060	500	405	870	410	330
.60	150	1230	580	480	1010	475	380	820	385	310
.70	175	1150	545	450	945	445	350	750	355	290
.75	185	1110	525	435	905	430	335	715	335	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

BLOWER DATA - CB29M

CB29M-41 BLOWER PERFORMANCE (460v - 1 ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1455	685	665	1120	530	535	925	435	420
.05	10	1445	680	655	1120	530	530	935	440	420
.10	25	1430	675	645	1120	530	520	945	445	415
.15	35	1420	670	635	1115	525	510	950	450	410
.20	50	1400	660	620	1110	525	500	950	450	405
.25	60	1385	655	605	1105	520	485	950	450	385
.30	75	1365	645	590	1095	515	475	945	445	380
.40	100	1325	625	555	1080	510	450	925	435	360
.50	125	1275	600	520	1055	495	425	890	420	345
.60	150	1220	575	475	1025	485	400	845	400	325
.70	175	1160	545	430	990	465	375	785	370	310
.80	200	1090	515	375	950	450	350	715	340	290

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-46 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1750	825	725	1495	705	580	1250	590	520
.05	10	1740	820	720	1495	705	580	1255	595	520
.10	25	1725	815	710	1490	700	575	1255	590	500
.15	35	1700	805	700	1475	695	565	1250	590	490
.20	50	1675	790	690	1460	690	550	1235	585	475
.25	60	1645	775	680	1435	675	535	1220	575	460
.30	75	1610	760	665	1405	665	520	1200	565	445
.40	100	1525	720	635	1335	630	490	1140	540	415
.50	125	1420	670	605	1245	585	455	1065	505	385
.60	150	1295	610	570	1135	535	420	970	455	355
.70	175	1155	545	535	1000	470	380	850	400	325
.80	200	995	470	495	850	400	345	715	340	295
.85	210	905	430	475	765	360	325	640	300	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-51 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2050	970	1005	1785	845	800	1590	750	660
.05	10	2030	955	990	1770	835	795	1570	740	655
.10	25	2005	945	980	1750	825	785	1550	735	650
.15	35	1975	935	970	1730	815	775	1530	725	645
.20	50	1950	920	955	1710	805	765	1510	715	640
.25	60	1920	905	940	1685	795	755	1490	705	635
.30	75	1890	890	930	1660	785	745	1465	690	630
.40	100	1820	860	900	1605	760	725	1415	670	615
.50	125	1745	825	875	1545	730	705	1365	645	600
.60	150	1665	785	845	1485	700	680	1305	615	580
.70	175	1580	745	820	1415	665	660	1245	585	555
.75	185	1535	725	805	1375	650	650	1210	570	540

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

BLOWER DATA - CB29M

CB29M-51 BLOWER PERFORMANCE (460v - 1 ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2135	1010	960	1895	895	800	1695	800	680
.05	10	2110	995	945	1875	885	785	1675	790	675
.10	25	2080	980	935	1855	875	775	1660	785	665
.15	35	2055	970	920	1830	865	765	1640	775	655
.20	50	2025	955	910	1805	850	755	1620	765	645
.25	60	1995	940	895	1780	840	740	1595	755	640
.30	75	1965	930	885	1755	830	730	1575	740	630
.40	100	1905	900	860	1700	800	710	1525	720	610
.50	125	1840	870	835	1640	775	685	1470	695	590
.60	150	1770	835	810	1580	745	665	1415	670	575
.70	175	1700	805	785	1515	715	640	1355	640	555
.80	200	1630	770	760	1445	680	620	1295	610	535
.85	210	1595	750	745	1410	665	605	1260	595	525

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-65 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps														
		High			Medium-High			Medium			Medium-Low			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2245	1060	1080	2130	1005	930	2000	945	820	1800	850	695	1565	740	570
.05	10	2220	1045	1070	2105	995	920	1980	935	815	1780	840	690	1550	730	570
.10	25	2190	1035	1060	2080	985	915	1955	925	805	1760	830	680	1535	725	565
.15	35	2165	1020	1050	2055	970	905	1935	910	795	1735	820	670	1520	715	560
.20	50	2135	1005	1040	2030	960	895	1910	900	785	1715	810	665	1500	710	555
.25	60	2105	995	1030	2000	945	885	1880	890	780	1690	795	655	1480	700	550
.30	75	2070	980	1020	1970	930	875	1855	875	770	1665	785	645	1460	690	540
.40	100	2005	945	995	1910	900	855	1795	850	750	1610	760	630	1415	670	530
.50	125	1935	910	975	1845	870	830	1735	820	730	1555	735	610	1365	645	515
.60	150	1855	875	950	1775	835	810	1665	785	710	1495	705	595	1310	615	500
.70	175	1775	840	925	1695	800	785	1595	755	690	1430	675	580	1245	590	485
.80	200	1690	800	900	1615	765	755	1520	715	665	1365	645	560	1180	555	470
.90	225	1600	755	875	1530	725	730	1440	680	645	1290	610	545	1105	520	455
.95	235	1555	735	865	1490	700	715	1395	660	635	1255	590	535	1070	505	450

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB29M-65 BLOWER PERFORMANCE (460v - 1 ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2230	1055	1145	2050	965	925	1790	845	750
.05	10	2200	1040	1135	2030	955	915	1770	835	740
.10	25	2170	1025	1120	2005	945	910	1745	825	735
.15	35	2140	1010	1110	1980	935	900	1725	815	725
.20	50	2110	995	1095	1960	925	890	1705	805	715
.25	60	2080	980	1085	1930	910	880	1680	795	705
.30	75	2045	965	1075	1905	900	870	1655	780	695
.40	100	1980	935	1050	1845	870	845	1605	755	675
.50	125	1910	900	1025	1785	840	825	1550	730	660
.60	150	1835	865	1000	1715	810	800	1490	705	640
.70	175	1760	830	975	1645	775	775	1425	675	620
.80	200	1680	795	950	1565	740	745	1360	640	600
.90	225	1600	755	925	1485	700	720	1290	610	585

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

SPECIFICATIONS - CB30M

Model Number		CB30M-21/26	CB30M-31	CB30M-41	CB30M-46	CB30M-51	CB30M-65	
Evaporator Coil	Net face area — ft. ² (m ²)	3.11 (0.29)	3.56 (0.33)	4.44 (0.41)	4.44 (0.41)	5.0 (0.46)	5.0 (0.46)	
	Tube outside diameter — in. (mm)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	
	Number of rows	3	3	3	3	3	3	
	Fins per inch (fins per m)	12 (472)	12 (472)	12 (472)	12 (472)	12 (472)	12 (472)	
	Suct. (vapor) line conn. - in. (mm) sweat	5/8 (16)	3/4 (19)	3/4 (19)	7/8 (22.2)	7/8 (22.2)	1-1/8 (28)	
	Liquid line conn. — in. (mm) sweat	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	
Condensate drain connection (fpt) — in. (mm)		(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	(2) 3/4 (19)	
Nominal cooling capacity — tons (kW)		1-5 - 2 (5.3 - 7.0)	2.5 (8.8)	3 (10.6)	3.5 (6.3)	4 (14.1)	5 (17.6)	
Refrigerant		HCFC-22						
Blower wheel nominal diameter x width — in. (mm)		10 x 7 (254 x 178)	10 x 8 (254 x 203)	11 x 8 (279 x 203)	11 x 8 (279 x 203)	11.5 x 9 (292 x 229)	12 x 9 (305 x 229)	
Blower motor output — hp (W)		1/5 (149)	1/3 (249)	1/3 (249)	1/3 (249)	1/3 (249)	1/2 (373)	
††Number and size of filters	in.	(1) 15 x 20 x 1	(1) 20 x 20 x 1			(1) 20 x 24 x 1		
	mm	(1) 381x508x25	(1) 508 x 508 x 25			(1) 508 x 610 x 25		
Electrical characteristics (60hz)		208/230v-1ph		208/230v-1ph **460v - 3 ph	208/230v-1ph	208/230v - 1 ph **460v - 3 ph ***575v - 3 ph		
Shipping weight — lbs. (kg) 1 package		136 (62)	157 (71)	177 (80)	181 (82)	206 (93)	206 (93)	
↴ Optional Accessories (Must Be Ordered Extra) ↴								
Side Return Unit Stand (Up-Flow Only)	Catalog number	45K31		45K32				
	Ship. wt. - lbs. (kg)	5 (2)		6 (3)				
Wall Hanging Bracket Kit - Shipping weight - lbs. (kg)		45K30 - 3 (1) (Up-Flow Only)						
Down-Flow Combustible Base - Ship. wt. - lbs. (kg)		34J72 - 8 (4)		34J73 - 8 (4)				
Electric Heat Capacity (1 phase)	ECB29-2.5	*Output - Btuh (kW)	9,500 (2.8)	10,000 (2.9)	----	----	----	----
		†A.F.U.E.	100%	100%	----	----	----	----
	ECB29-5, ECB29-5CB	*Output - Btuh (kW)	18,000 (5.3)	18,500 (5.4)	18,500 (5.4)	19,000 (5.6)	19,000 (5.6)	----
		†A.F.U.E.	100%	100%	100%	100%	100%	----
	ECB29-8, ECB29-8CB	*Output - Btuh (kW)	28,000 (8.2)	28,500 (8.4)	28,500 (8.4)	29,000 (8.5)	29,000 (8.5)	30,500 (8.9)
		†A.F.U.E.	100%	100%	100%	100%	100%	100%
	ECB29-10, ECB29-10CB	*Output - Btuh (kW)	35,000 (10.3)	35,500 (10.4)	35,500 (10.4)	36,000 (10.5)	36,000 (10.5)	37,000 (10.8)
		†A.F.U.E.	100%	100%	100%	100%	100%	100%
	ECB29-12.5CB	*Output - Btuh (kW)	----	44,000 (12.9)	44,000 (12.9)	44,500 (13.0)	44,500 (13.0)	45,500 (13.3)
		†A.F.U.E.	----	100%	100%	100%	100%	100%
	ECB29-15CB	*Output - Btuh (kW)	----	52,500 (15.4)	52,500 (15.4)	53,000 (15.5)	53,000 (15.5)	54,000 (15.8)
		†A.F.U.E.	----	100%	100%	100%	100%	100%
	ECB29-20CB	*Output - Btuh (kW)	----	----	69,500 (20.4)	70,000 (20.5)	70,000 (20.5)	71,500 (20.9)
		†A.F.U.E.	----	----	100%	100%	100%	100%
	ECB29-25CB	*Output - Btuh (kW)	----	----	----	----	87,000 (25.5)	88,500 (25.9)
		†A.F.U.E.	----	----	----	----	100%	100%
	ECB29-30CB	*Output - Btuh (kW)	----	----	----	----	----	105,500 (30.9)
		†A.F.U.E.	----	----	----	----	----	100%

†Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and according to FTC labeling regulations.

††CB30M-21/26, -31, -46, -51, -65 furnished with disposable frame type filter, CB30M-41 furnished with cleanable polyurethane frame type filter.

*Includes additional blower motor heat capacity.

**Blower motor is 460v single phase.

***Blower motor is 460v single phase. 575v electric heaters are shipped with step-down transformer for use with 460v units (CB30M-51 & CB30M-65 models only).

BLOWER DATA - CB30M

CB30M-21/26 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1030	485	365	895	425	300	700	330	245
.05	10	1015	480	360	890	420	295	695	330	245
.10	25	1000	470	355	875	415	290	690	325	240
.15	35	980	465	345	860	405	285	680	320	235
.20	50	960	455	340	845	400	280	665	315	230
.25	60	935	440	335	825	390	275	650	310	220
.30	75	910	430	325	800	380	265	635	300	215
.40	100	850	400	310	745	355	250	590	280	205
.50	125	780	370	295	685	320	235	535	255	190
.60	150	705	330	280	605	285	220	470	220	175
.70	175	615	290	265	520	245	200	395	185	165
.75	185	565	265	255	475	225	195	350	165	155

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-31 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1290	610	385	1175	555	335	1045	490	315
.05	10	1295	610	380	1190	560	330	1075	505	310
.10	25	1290	610	375	1190	560	325	1085	515	300
.15	35	1265	600	370	1175	555	320	1085	510	295
.20	50	1230	580	360	1145	540	310	1065	505	285
.25	60	1180	555	350	1105	520	295	1030	485	270
.30	75	1115	525	335	1045	495	280	980	460	255
.40	100	945	445	305	890	420	250	830	390	220
.50	125	720	340	275	675	320	215	615	290	190
.60	150	440	205	240	405	190	185	335	155	160

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-41 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1525	720	505	1120	530	390	915	430	335
.05	10	1520	720	495	1150	540	385	965	455	330
.10	25	1510	715	480	1170	550	380	1005	475	315
.15	35	1495	705	470	1180	560	285	1035	490	235
.20	50	1475	695	455	1190	560	280	1055	495	230
.25	60	1450	685	440	1185	560	275	1060	500	220
.30	75	1415	670	430	1175	555	375	1050	495	215
.40	100	1335	630	400	1135	535	325	1005	475	290
.50	125	1230	580	375	1060	500	300	915	430	255
.60	150	1100	520	345	960	455	280	775	365	230
.70	175	950	450	320	830	390	255	590	280	205
.75	185	870	410	305	750	355	245	485	230	195

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

BLOWER DATA - CB30M

CB30M-41 BLOWER PERFORMANCE (460v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps					
		High			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1525	720	505	1120	530	390
.05	10	1520	720	495	1150	540	385
.10	25	1510	715	480	1170	550	380
.15	35	1495	705	470	1180	560	285
.20	50	1475	695	455	1190	560	280
.25	60	1450	685	440	1185	560	275
.30	75	1415	670	430	1175	555	375
.40	100	1335	630	400	1135	535	325
.50	125	1230	580	375	1060	500	300
.60	150	1100	520	345	960	455	280
.70	175	950	450	320	830	390	255
.75	185	870	410	305	750	355	245

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-46 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1825	860	565	1600	755	455	1325	625	370
.05	10	1790	845	555	1585	750	455	1335	630	370
.10	25	1750	825	540	1565	740	450	1335	630	370
.15	35	1710	805	530	1540	725	440	1330	630	365
.20	50	1660	785	520	1505	710	435	1320	620	360
.25	60	1610	760	505	1470	695	425	1300	615	355
.30	75	1555	735	495	1425	675	415	1270	600	350
.40	100	1430	675	465	1320	625	390	1195	565	330
.50	125	1290	610	440	1195	565	365	1090	515	310
.60	150	1135	535	415	1050	495	335	955	450	285
.70	175	965	455	385	875	415	310	795	375	260
.75	185	875	415	370	780	370	295	700	330	250

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-51 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1910	900	590	1785	845	520	1475	695	430
.05	10	1895	895	585	1770	835	515	1480	700	430
.10	25	1870	880	580	1750	825	510	1475	695	425
.15	35	1840	865	570	1720	810	500	1465	690	420
.20	50	1800	850	565	1685	795	490	1445	680	410
.25	60	1755	830	550	1645	775	480	1415	670	405
.30	75	1700	805	540	1600	755	465	1380	650	395
.40	100	1580	745	515	1485	700	440	1290	610	370
.50	125	1425	675	485	1350	635	410	1170	550	345
.60	150	1250	590	450	1190	560	380	1020	480	320
.70	175	1045	495	415	1000	470	350	840	395	295
.75	185	930	440	400	900	425	335	740	350	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

BLOWER DATA - CB30M
CB30M-51 BLOWER PERFORMANCE (460v - 1 ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps					
		High			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1870	885	610	1775	835	530
.05	10	1875	885	610	1775	835	530
.10	25	1870	880	590	1765	835	515
.15	35	1850	875	585	1750	825	510
.20	50	1825	860	575	1720	815	500
.25	60	1790	845	560	1685	795	490
.30	75	1745	825	545	1645	775	480
.40	100	1625	765	505	1530	720	450
.50	125	1465	690	470	1380	650	420
.60	150	1270	600	425	1195	565	385
.70	175	1030	485	385	975	460	350
.80	200	755	355	340	720	340	320

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-65 BLOWER PERFORMANCE (208/230v)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2115	995	780	2025	955	670	1775	835	585
.05	10	2100	990	770	2010	950	665	1775	835	590
.10	25	2085	985	765	1995	940	655	1770	835	580
.15	35	2060	970	750	1975	930	645	1760	830	570
.20	50	2030	960	740	1950	920	635	1745	825	560
.25	60	2000	945	730	1915	905	625	1725	815	550
.30	75	1960	925	715	1880	885	610	1695	800	535
.40	100	1870	880	685	1795	845	580	1630	770	505
.50	125	1755	830	655	1690	795	545	1540	725	475
.60	150	1620	765	625	1560	735	515	1425	675	440
.70	175	1465	690	590	1415	670	480	1295	610	410
.80	200	1290	610	560	1250	590	445	1140	535	375
.85	210	1195	565	545	1160	550	425	1050	495	360

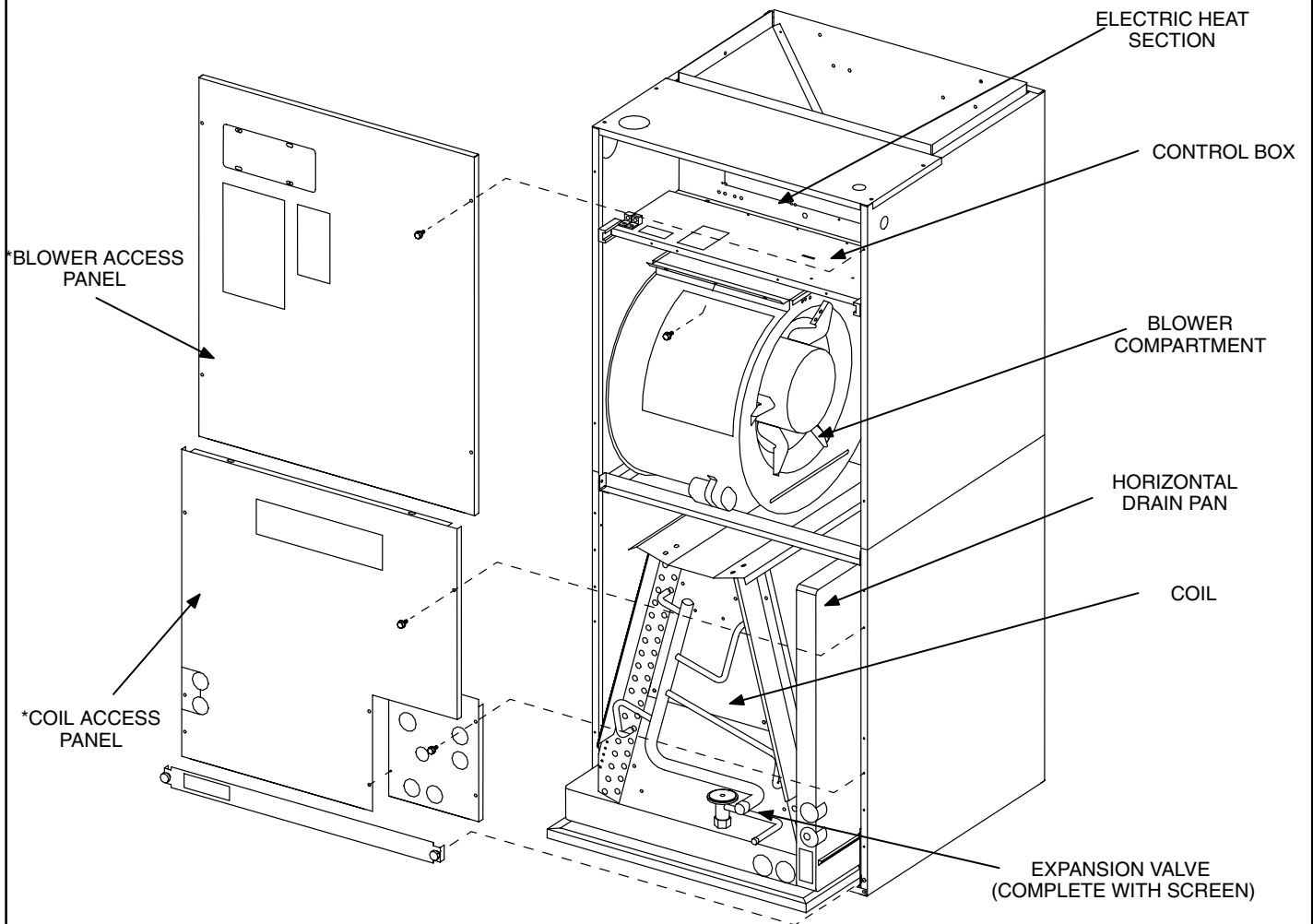
NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30M-65 BLOWER PERFORMANCE (460v - 1 ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps					
		High			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2140	1010	795	1965	930	710
.05	10	2110	995	780	1950	920	700
.10	25	2080	980	765	1930	910	685
.15	35	2045	965	755	1910	900	675
.20	50	2005	945	740	1880	890	660
.25	60	1965	925	725	1850	875	645
.30	75	1920	905	710	1815	855	630
.40	100	1820	860	680	1735	820	600
.50	125	1710	805	650	1635	770	570
.60	150	1585	750	615	1520	720	540
.70	175	1450	685	585	1390	655	505
.80	200	1305	615	550	1245	590	475
.85	210	1225	580	535	1165	550	460

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB28UH, CB29M & CB30M PARTS ARRANGEMENT



**CB28UH units have a one piece blower/coil access panel*

FIGURE 1

CB29M-1 and CB30M-1 CONTROL BOX

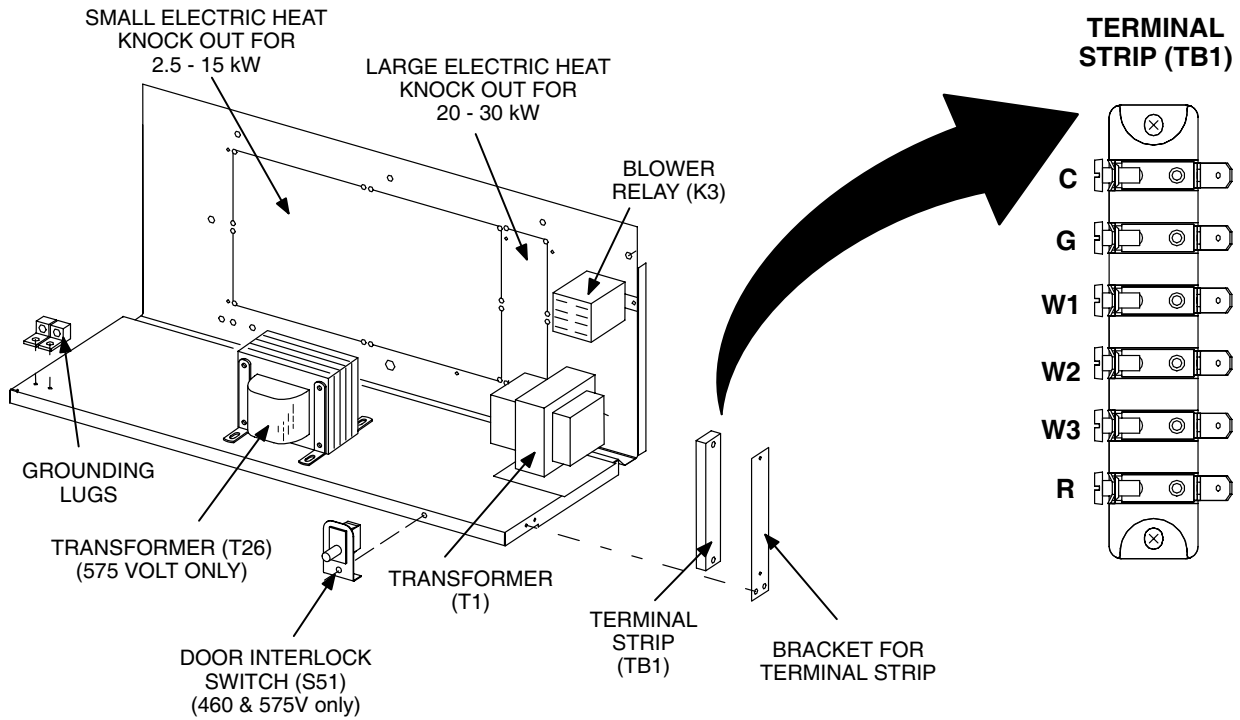


FIGURE 2

CB28UH, CB29M-2 and CB30M-2 CONTROL BOX

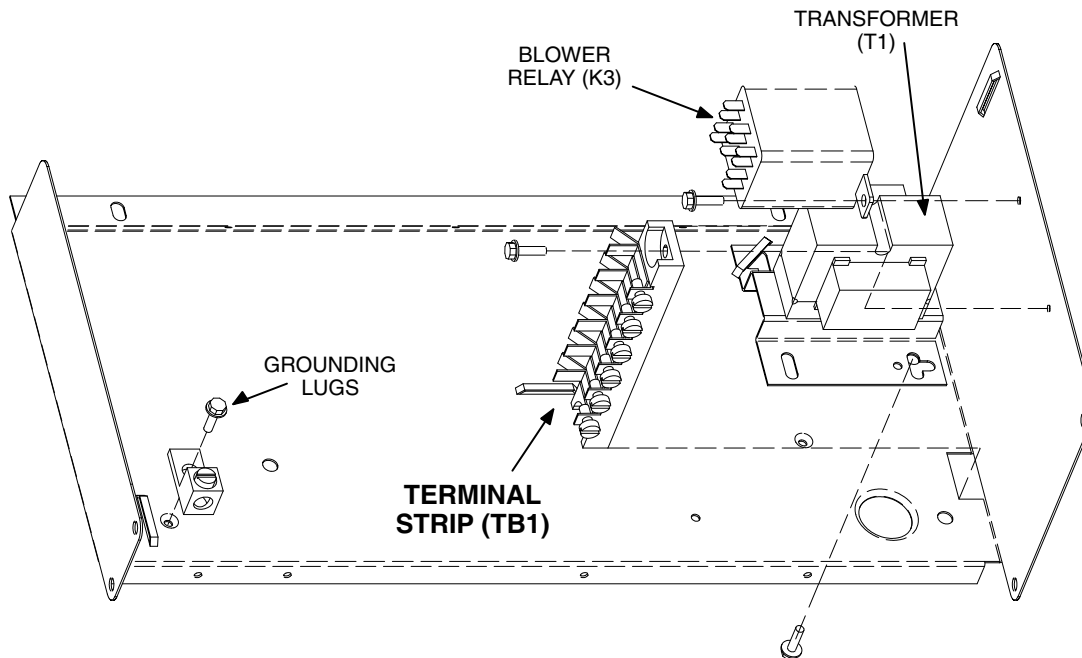


FIGURE 3

I-APPLICATION

All major blower coil components must be matched according to Lennox recommendations for the unit to be covered under warranty. Refer to the Engineering Handbook for approved system matchups. A misapplied system will cause erratic operation and can result in early unit failure. The units come with factory installed check and expansion valve for all applications. The TXV valve has been installed internally for a cleaner installation and is accessible if required.

ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures

⚠ CAUTION

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface before performing any service procedure.

II-UNIT COMPONENTS

A-Control Box

The CB29M-1 and CB30M-1 control box is shown in figure 2 (460 and 575V unit control box also in figure 2). The CB28UH, CB29M-2 and CB30M-2 control box is shown in figure 3. Line voltage and electric heat connections are made in the control box. Optional electric heat fits through an opening located in the center of the control box. When electric heat is not used, knock out plates cover the opening. The electric heat control arrangement is detailed in the electric heat section of this manual.

B-Door Interlock Switch (S51) (460 and 575 volt only)

All CB28UH, CB29M and CB30M 460/575 volt units are equipped with a door interlock switch (S51). The switch is rated at 14A at 125VAC and is located on the edge of the control box (see figure 2). The switch is wired in series with terminal strip (TB1). When the blower door is removed the unit will shut down.

C-Terminal Strip (TB1)

All CB28UH, CB29M and CB30M units are equipped with a low voltage terminal strip (TB1) located in the control box. See figure 2. The strip is used for making up all indoor thermostat wires. The outdoor unit low voltage wiring connections may be spliced with wire nuts inside the CB units.

D-Transformer (T1)

All CB28UH, CB29M and CB30M series units use a single line voltage to 24VAC transformer mounted in the control box. The transformer supplies power to the control circuits in the indoor and outdoor unit. Transformers in all CB29M/30M-1 units and CB29M/30M-48-2 and -60-2 units are rated at 70VA. Transformers in all CB28UH and CB29M/30M-21/26-2, -30-2, -36-2 and -42-2 units are rated at 40VA. 208/240VAC single phase transformers use two primary voltage taps as shown in figure 4.

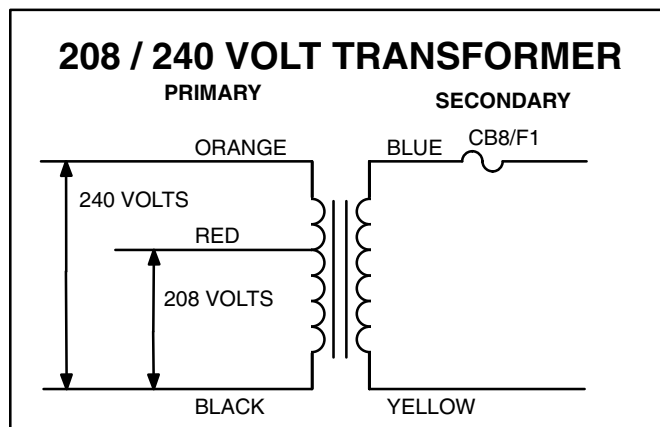


FIGURE 4

E-Circuit Breaker (CB8) & Fuse (F1)

All transformers used in the CB29M-1 and CB30M-1 series units are equipped with internal secondary voltage overcurrent protection. Each transformer uses a circuit breaker (CB8) located on the transformer. The circuit breaker is connected in series with the blue secondary voltage wire and is rated 3.5 Amps. CB28UH, CB29M-2 and CB30M-2 units are equipped with a fuse (F1). F1 provides secondary voltage overcurrent protection and is rated at 3 amps.

F-Auto Transformer (T26) (575 volt only)

All CB28UH, CB29M and CB30M 575 volt units use a 575VAC to 460VAC step down transformer mounted in the control box (see figure 2). The transformer comes with the 575 volt electric heater and is connected to the unit via jack/plugs J/P50 and J/P92. The transformer supplies 460VAC to transformer T1 and blower motor B3.

G-Transformer Fuse (F33) (575 volt only)

All T26 auto transformers are protected by two inline fuses (F33). Both of the fuses are rated at 600 volts and 3.2 amps.

H-Blower Relay (K3)

All CB28UH, CB29M and CB30M units use a DPDT relay to energize the blower motor. The relay coil is energized by blower demand from indoor thermostat. When the coil is energized, a set of N.O. contacts closes to energize the blower motor on cooling speed. When de-energized, a set of N.C. contacts allows the optional electric heat relay to energize the blower on heating speed (refer to unit wiring diagram).

BLOWER ASSEMBLY

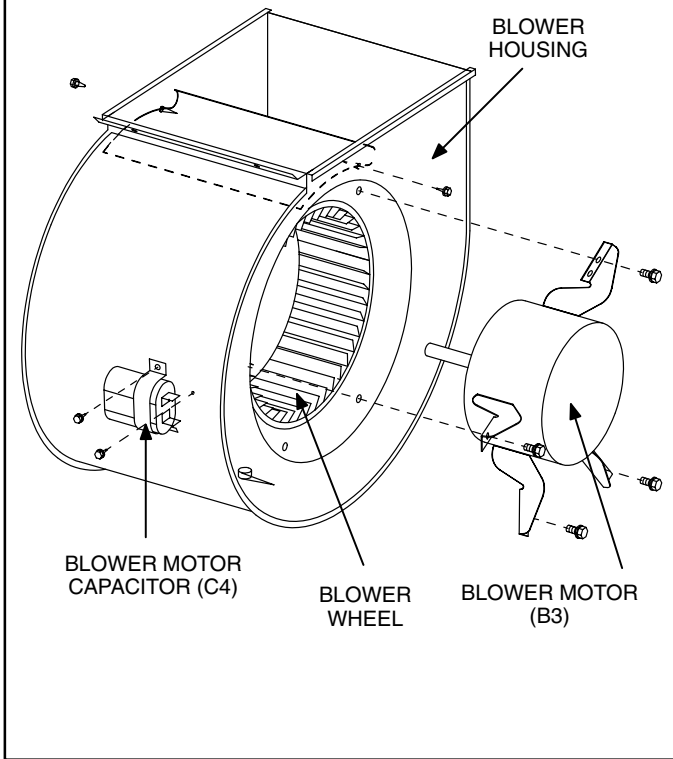


FIGURE 5

I-Blower Motor (B3)

All CB28UH, CB29M and CB30M units use single phase direct drive blower motors with a run capacitor. Figure 5 shows the parts arrangement. All motors use multiple speed taps. Typically, the high speed tap is energized during normal operation. The horse power for each blower motor is listed in table 1.

All units are factory wired for the minimum blower speed for heat pump and cooling applications with or without electric heat. No field wiring is required. The wiring diagrams show factory set blower speeds. To run the blower on high speed, refer to the installation instructions. All speeds shown are minimums. Do not change motor taps to operate at speeds lower than those shown in the tables.

460 Volt Blower Motor Windings

A third tap (blue) on 460 volt motors is used for internal wiring during low speed operation and must not be connected to line voltage. During low speed (yellow tap) operation, the high speed (black) tap is disconnected from line voltage and is connected to the blue internal wiring tap. This is done by the blower relay (K3). For more information refer to Service and Application Note (Corp. 8909-L7) on 460 volt blower motor windings.

J-Blower Motor Capacitor (C4)

All CB28UH, CB29M and CB30M series units use single phase direct drive motors with a run capacitor. The run capacitor is mounted on the blower housing. See figure 5. Capacitor ratings are shown in table 1.

TABLE 1

CB29M & CB30M BLOWER RATINGS		
UNIT	HORSE POWER	CAPACITOR RATING
CB28UH-18/24, CB29M-21/26 (P)	1/5 HP	7.5MFD / 370V
CB28UH-030, CB29M-31 (P)	1/3 HP	5MFD / 370V
CB28UH-036 CB29M-41 (P)	1/3 HP	5MFD / 370V
CB28UH-042 CB29M-46 (P/G)	1/2HP	10MFD / 370V
CB28UH-048 CB29M-51 (P/G)	3/4 HP	10MFD / 370V
CB28UH-060 CB29M-65 (P/G)	3/4 HP	20MFD / 370V
CB30M-21/26 (P)	1/5 HP	7.5MFD / 370V
CB30M-31 (P)	1/3 HP	15MFD / 370V
CB30M-41 (P)	1/3 HP	15MFD / 370V
CB30M-46 (P)	1/3 HP	20MFD / 370V
CB30M-51 (P/G)	1/3 HP	20MFD / 370V
CB30M-65 (P/G)	1/2 HP	20MFD / 370V

K-Coil

All CB28UH, CB29M and CB30M series units have dual slab coils arranged in an "A" configuration. Each coil has two or three rows of copper tubes fitted with ripple-edged aluminum fins. An expansion valve complete with screen, feeds multiple parallel circuits through the coils. The coil is designed to easily slide out of the unit cabinet.

L-Plastic Drain Pans

Both upflow/downflow and horizontal drain pans are provided and installed on the CB28UH, CB29M and CB30M units. The drain pans are made from fiberglass filled plastic. The drain hole on horizontal pans are used for right-hand discharge only, and must be plugged when the unit is configured for left-hand discharge.

III-OPTIONAL ECB29 ELECTRIC HEAT

A-Matchups and Ratings

Tables 4 through 16 show all approved CB28UH, CB29M and CB30M to ECB29 matchups and electrical ratings.

B-Electric Heat Components

ECB29 parts arrangement is shown in figures 6 through 11. All electric heat sections consist of components mounted to the electric heat vestibule panel and electric heating elements exposed directly to the airstream. 208/230V electric heat sections may be equipped with circuit breakers. The circuit breakers are designated by CB in the model number. 460 and 575 volt electric heat sections are equipped with fuses. The electric heat section is connected to the unit via jack J2, which plugs into plug P2 of the unit.

1-Electric Heat Sequencer Relays

(K32, K33, K34, K35, K116, K117) (208/230 volt only)

Relays K32, K33, K34, K35, K116 and K117 are N.O. sequencer relays with a resistive element for a coil and a bi-metal disk which actuates the contacts. The relays are located on the electric heat vestibule panel and are energized by a 24V heating demand (W1, W2, and W3) via jack/plug 2. When energized, the internal resistance heats the bi-metal disk causing the contacts to close. When the relay is de-energized, the disk cools and the contacts open. The relays energize different stages of heat, as well as the blower. The blower is always first on and last off.

2-Heat Blower Relay (K36) (460 & 575 volt only)

Contactors K36 is a Three Pole Double Throw (3PDT) N.O. contactor located on the electric heat vestibule panel. The contactor is equipped with a 24VAC coil and is energized by a 24V heating demand (W1, W2, and W3) via jack/plug 2. The contactor energizes the blower, as well as the electric heat relay (K15). The blower is always first on and last off.

3-Electric Heat Contactor (K15) (460 & 575 volt only)

Contactors K15 is a Three Pole Double Break (3PDB) N.O. contactor located on the electric heat vestibule panel. The contactor is equipped with a 24VAC coil and is energized by a 24V heating demand (W1, W2, and W3) via jack/plug 2. The contactor energizes the heating elements.

4-Primary(S15) & Secondary(S20) Temperature Limits

Both the primary (S15) and secondary (S20) limits are located on the electric heat vestibule panel and are exposed directly to the airstream through an opening in the panel. The high temperature limits are SPST N.C. limits with the primary limit being an auto-reset limit and the secondary limit being a "one-time" limit. One-time limits need to be replaced when opened. The limits are factory set and are not adjustable.

208/230 Volt Electric Heat Sections

Each stage of the 208/230 electric heat is protected by a primary (S15) and secondary (S20) high temperature limit. Both S15 and S20 are located in the same housing. Each stage use the same style of limits. Both the primary and secondary limits are wired in series with a heat element. When either S15 or S20 opens, the corresponding heat element is de-energized. All other heating elements remain energized. The primary high temperature limit opens at $150^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($65.5^{\circ}\text{C} \pm 2.8^{\circ}\text{C}$) on a temperature rise and automatically resets at $110^{\circ}\text{F} \pm 9^{\circ}\text{F}$ ($43.3^{\circ}\text{C} \pm 5.0^{\circ}\text{C}$) on a temperature fall. The secondary high temperature limit opens at $333^{\circ}\text{F} \pm 10^{\circ}\text{F}$ ($167.2^{\circ}\text{C} \pm 5.6^{\circ}\text{C}$) on a temperature rise. If the secondary limit opens it will need to be replaced.

460 and 575 Volt Electric Heat Sections

The 460 and 575 volt electric heat sections are protected by three separate high temperature limits: one primary (S15) and two secondary (S20) limits. The primary limit is wired in series with the contactor coil (K15); while the secondary limits are wired in series with the electric heating elements, after the contacts (K15-1). When S15 opens, all heating elements are de-energized. If either S20 switch opens, the heating output is cut in half. If both S20 switches open, all heating elements are de-energized. The primary high temperature limit opens at $150^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($65.5^{\circ}\text{C} \pm 2.8^{\circ}\text{C}$) on a temperature rise and automatically resets at $110^{\circ}\text{F} \pm 9^{\circ}\text{F}$ ($43.3^{\circ}\text{C} \pm 5.0^{\circ}\text{C}$) on a temperature fall. The secondary high temperature limits open at $300^{\circ}\text{F} \pm 10^{\circ}\text{F}$ ($148.9^{\circ}\text{C} \pm 5.6^{\circ}\text{C}$) on a temperature rise. If the secondary limit opens, it will need to be replaced.

5-Circuit Breaker (CB1, CB2, and CB3) (208/230 volt only)

Line voltage connections are made to circuit breakers CB1, CB2, and CB3 in the electric heat sections with circuit breakers (designated by CB in the model numbers). Table 2 shows the amp rating for each circuit breaker used. Single phase electric heat uses two pole circuit breakers; while three phase electric heat uses three pole circuit breakers.

TABLE 2

ECB29 CIRCUIT BREAKERS			
UNIT	CB1 AMPS	CB2 AMPS	CB3 AMPS
ECB29-5CB-1 (P)	30 AMP	---	---
ECB29-8CB-1 (P)	50 AMP	---	---
ECB29-10CB-1 (P)	60 AMP	---	---
ECB29-12.5CB-1 (P)	25 AMP	50 AMP	---
ECB29-15CB-1 (P)	30 AMP	60 AMP	---
ECB29-20CB-1 (P)	60 AMP	60 AMP	---
ECB29-25CB-1 (P)	50 AMP	50 AMP	50 AMP
ECB29-30CB-1 (P)	60 AMP	60 AMP	60 AMP
ECB29-15CB-1 (Y)	60 AMP	---	---
ECB29-20CB-1 (Y)	40 AMP	35 AMP	---
ECB29-25CB-1 (Y)	50 AMP	35 AMP	---

Note: Do not remove patch plate or insulation on units without circuit breakers!!

6-Fuse (F3) (460 and 575 volt only)

Line voltage connections are made to fuse (F3) in all 460 and 575 volt electric heat sections. Three fuses are mounted in the fuse block. The electric heat name plate and Table 3 show the amp ratings for the fuses used.

TABLE 3

ECB29 460/575 VOLTAGE FUSES	
UNIT	FUSE SIZE (AMPS)
ECB29-10-1 (G)	20 AMP
ECB29-15-1 (G)	25 AMP
ECB29-20-1 (G)	35 AMP
ECB29-25-1 (G)	40 AMP
ECB29-20-1 (J)	25 AMP
ECB29-25-1 (J)	35 AMP

7-Terminal Strip (TB2) 208/230 volt only)

For the electric heat sections without circuit breakers or fuses, line voltage connections are made to terminal strip TB2. The terminal strip is located in the lower left corner of the electric heat vestibule panel. Single phase electric heat uses two pole terminal strips; while three phase electric heat uses three pole terminal strips.

8-Heating Elements (HE1 through HE6)

Heating elements are composed of helix wound bare nichrome wire exposed directly to the airstream. The elements are supported by insulators mounted to the wire frame. For single phase applications, one element is used per stage. Each stage is energized independently by the corresponding relay located on the electric heat vestibule panel. All three phase heating elements are arranged in a three phase delta. Once energized, heat transfer is instantaneous. High temperature protection is provided by primary and secondary high temperature limits.

ECB29-2.5, -5, -5CB 208/230 SINGLE PHASE ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT

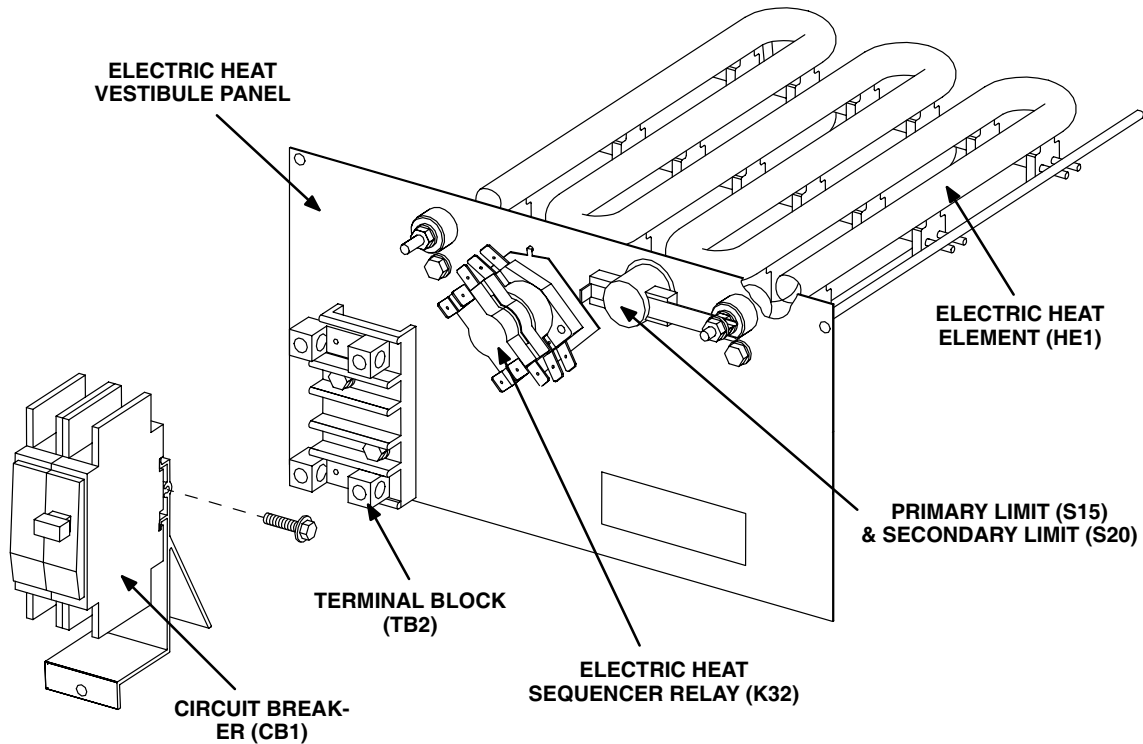


FIGURE 6

ECB29-8, -8CB, -10, -10CB 208/230 SINGLE PHASE ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT

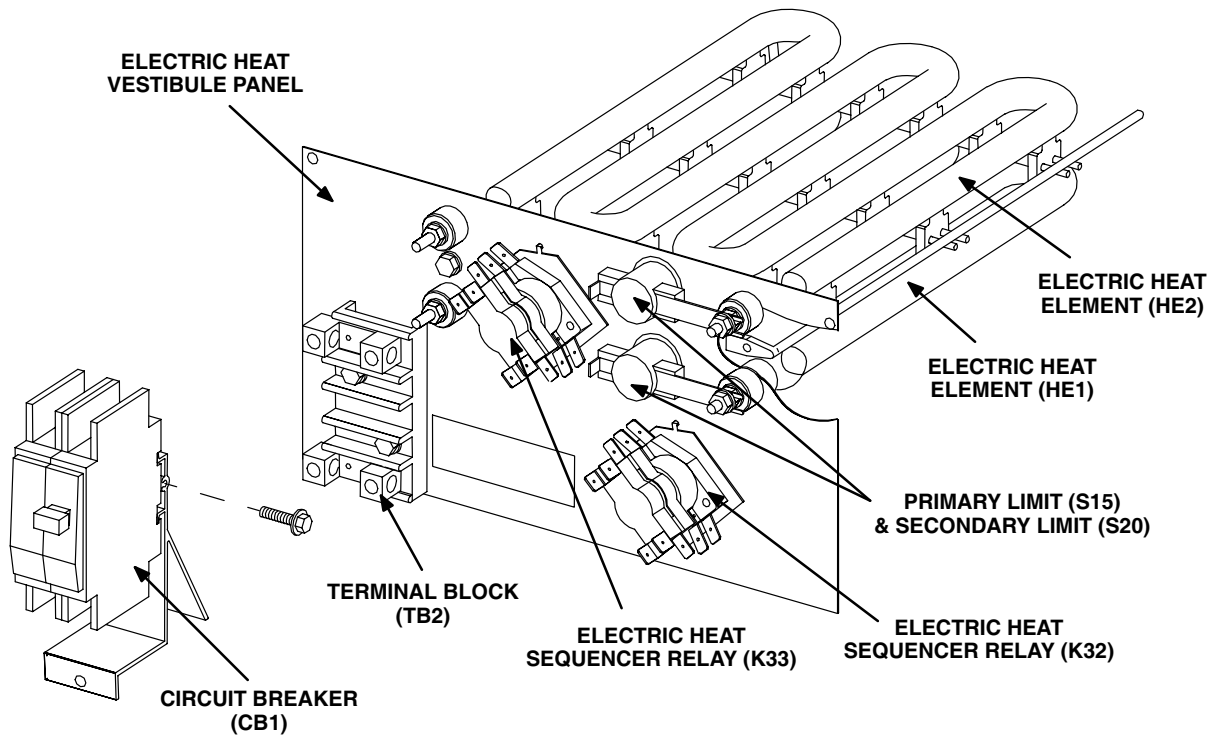


FIGURE 7

**ECB29-8, -10 208/230 THREE PHASE
ECB29-12.5CB, -15CB 208/230 SINGLE & THREE PHASE
ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT**

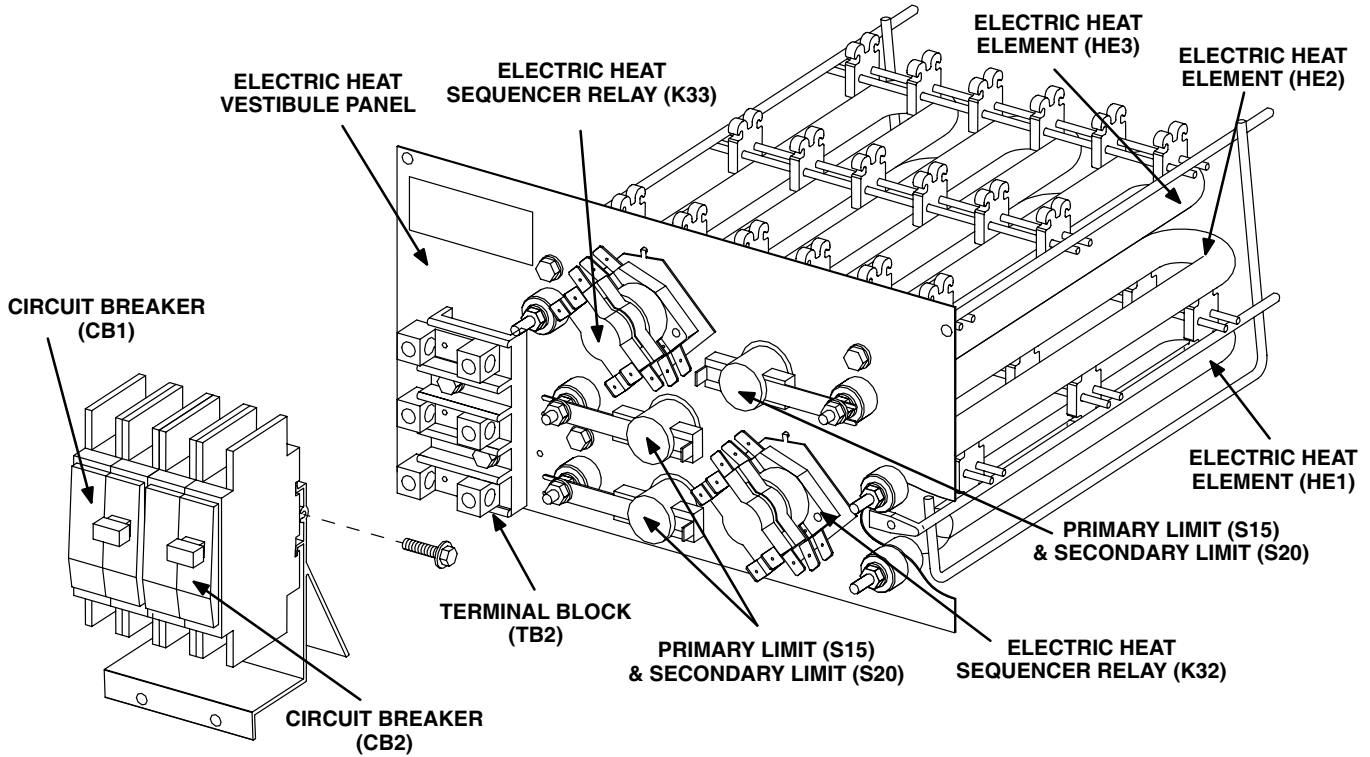


FIGURE 8

**ECB29-20CB 208/230 SINGLE PHASE
ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT**

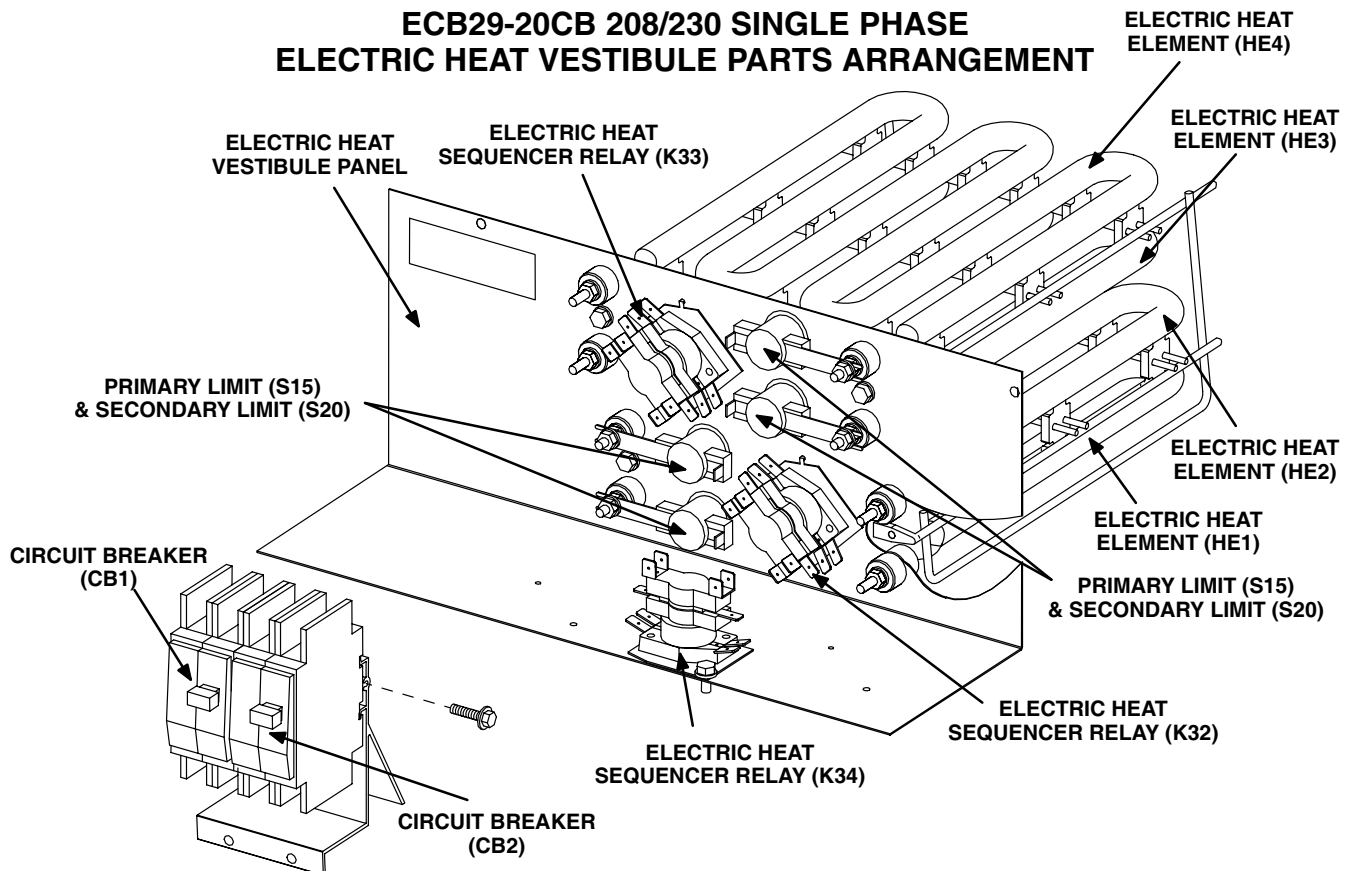


FIGURE 9

**ECB29-20CB, -25CB 208/230 THREE PHASE
ECB29-25CB, -30CB 208/230 SINGLE PHASE
ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT**

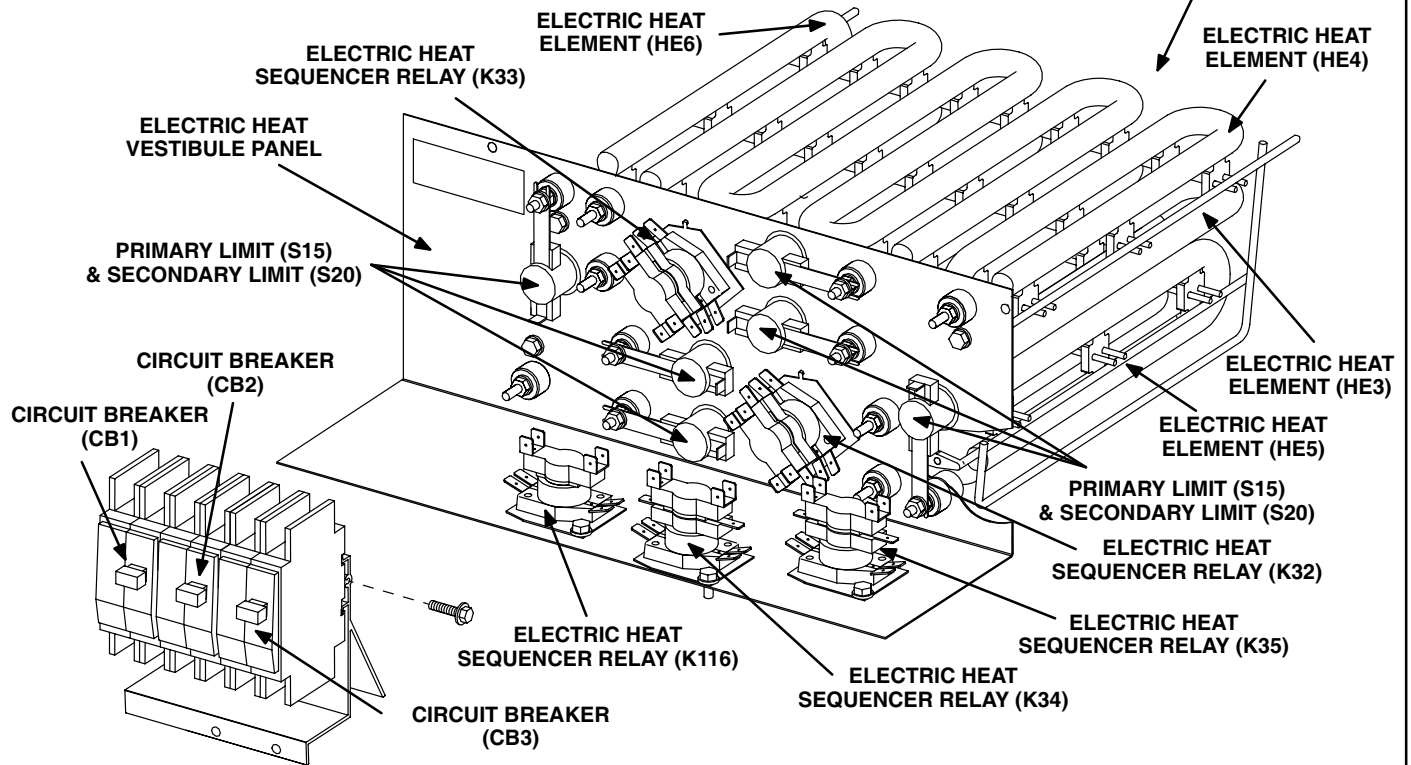


FIGURE 10

**ECB29-20, -25 575V THREE PHASE
ECB29-10, -15, -20, -25 460V THREE PHASE
ELECTRIC HEAT VESTIBULE PARTS ARRANGEMENT**

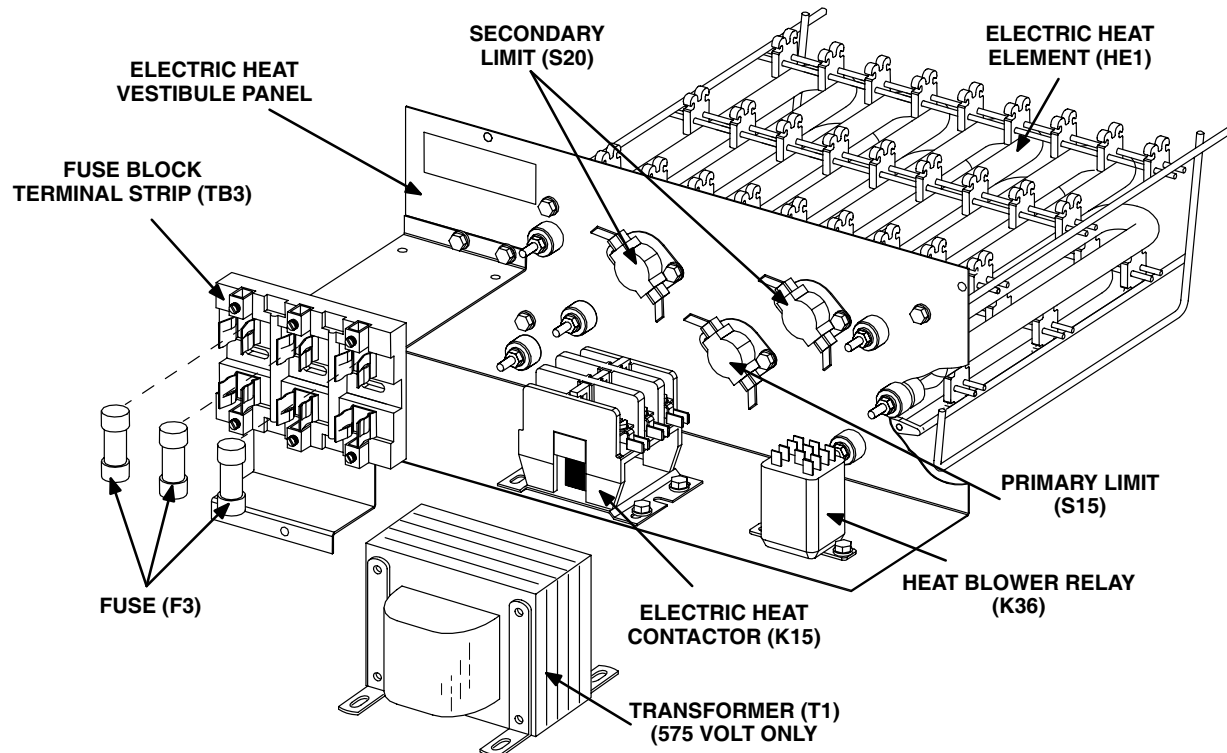


FIGURE 11

TABLE 4- ELECTRIC HEAT DATA - CB28UH-018/024 & CB28UH-030

SINGLE PHASE ELECTRIC HEAT						CB28UH-018/024			CB28UH-030				
Model Number	No. Steps	Volt	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection	
			kW	Btuh						Circuit 1	Circuit 2	Circuit 1	Circuit 2
2.5 kW 4 lbs.	ECB29-2.5 (28K30) Terminal block	1	208	1.9	6,400	1.5	13	15	Not Available				
			220	2.1	7,200	1.5	15	15					
			230	2.3	7,800	1.5	15	15					
			240	2.5	8,500	1.5	15	15					
5 kW 4 lbs.	ECB29-5 (28K31) Terminal Block ECB29-5CB (28K32) 30A Circuit breaker	1	208	3.8	12,800	1.5	24	⁴ 25	2.4	26	---	30	---
			220	4.2	14,300	1.5	28	30	2.4	29	---	30	---
			230	4.6	15,700	1.5	28	30	2.4	29	---	30	---
			240	5.0	17,100	1.5	28	30	2.4	29	---	30	---
6 kW 4 lbs.	ECB29-6 (47L22) Terminal block ECB29-6CB (47L23) 35A Circuit breaker	1	208	4.5	15,400	1.5	29	⁴ 30	2.4	30	---	⁴ 30	---
			220	5.0	17,100	1.5	33	35	2.4	34	---	35	---
			230	5.5	18,800	1.5	33	35	2.4	34	---	35	---
			240	6.0	20,500	1.5	33	35	2.4	34	---	35	---
8 kW 5 lbs.	ECB29-8 (28K33) Terminal block ECB29-8CB (28K34) 45A Circuit breaker	2	208	6.0	20,500	1.5	40	⁴ 40	2.4	40	---	⁴ 40	---
			220	6.7	22,900	1.5	44	45	2.4	45	---	45	---
			230	7.3	25,100	1.5	44	45	2.4	45	---	45	---
			240	8.0	27,300	1.5	44	45	2.4	45	---	45	---
9 kW 5 lbs.	ECB29-9CB (10L11) 50A Circuit breaker	2	208	6.8	23,100	1.5	42	⁴ 45	2.4	44	---	⁴ 45	---
			220	7.6	25,800	1.5	49	50	2.4	50	---	50	---
			230	8.3	28,200	1.5	49	50	2.4	50	---	50	---
			240	9.0	30,700	1.5	49	50	2.4	50	---	50	---
10 kW 6 lbs.	ECB29-10 (28K35) Terminal block ECB29-10CB (28K36) 60A Circuit breaker	2	208	7.5	25,600	1.5	47	⁴ 50	2.4	48	---	⁴ 50	---
			220	8.4	28,700	1.5	54	60	2.4	55	---	60	---
			230	9.2	31,400	1.5	54	60	2.4	55	---	60	---
			240	10.0	34,100	1.5	54	60	2.4	55	---	60	---
12.5 kW 10 lbs.	ECB29-12.5CB (28K37) (1) 25A & (1) 50A Circuit breaker	3	208	9.4	32,000	Not Available			2.4	22	31	25	⁴ 45
			220	10.5	35,800				2.4	25	35	25	50
			230	11.5	39,200				2.4	25	35	25	50
			240	12.5	42,600				2.4	25	35	25	50
15 kW 12 lbs.	ECB29-15CB (28K38) (1) 30A & (1) 60A Circuit breaker	3	208	11.3	38,400	Not Available			2.4	26	37	30	⁴ 50
			220	12.6	43,000				2.4	29	42	30	60
			230	13.5	47,000				2.4	29	42	30	60
			240	15.0	51,200				2.4	29	42	30	60

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only — does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

³ HACR type breaker or fuse.

⁴ Bold text indicates that the circuit breaker on “CB” circuit breaker models must be replaced (field provided) with size noted.

TABLE 5- ELECTRIC HEAT DATA - CB28UH-036 & CB28UH-042

SINGLE PHASE ELECTRIC HEAT						CB28UH-036				CB28UH-042					
Model Number	No. Steps	Volts	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection		Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection	
			kW	1 Btuh			Circuit 1	Circuit 2	Circuit 1	Circuit 2		Circuit 1	Circuit 2	Circuit 1	Circuit 2
5 kW 4 lbs.	ECB29-5 (28K31)	1	208	3.8	12,800	2.4	26	---	30	---	4.4	29	---	30	---
	Terminal block		220	4.2	14,300	2.4	29	---	30	---	4.4	32	---	35	---
	ECB29-5CB (28K32)		230	4.6	15,700	2.4	29	---	30	---	4.4	32	---	35	---
	30A Circuit breaker		240	5.0	17,100	2.4	29	---	30	---	4.4	32	---	35	---
6 kW 4 lbs.	ECB29-6 (47L22)	1	208	4.5	15,400	2.4	30	---	⁴ 30	---	4.4	33	---	35	---
	Terminal block		220	5.0	17,100	2.4	34	---	35	---	4.4	37	---	40	---
	ECB29-6CB (47L23)		230	5.5	18,800	2.4	34	---	35	---	4.4	37	---	40	---
	35A Circuit breaker		240	6.0	20,500	2.4	34	---	35	---	4.4	37	---	40	---
8 kW 5 lbs.	ECB29-8 (28K33)	2	208	6.0	20,500	2.4	40	---	⁴ 40	---	4.4	42	---	45	---
	Terminal block		220	6.7	22,900	2.4	45	---	45	---	4.4	47	---	50	---
	ECB29-8CB (28K34)		230	7.3	25,100	2.4	45	---	45	---	4.4	47	---	50	---
	45A Circuit breaker		240	8.0	27,300	2.4	45	---	45	---	4.4	47	---	50	---
9 kW 5 lbs.	ECB29-9CB (10L11)	2	208	6.8	23,100	2.4	44	---	⁴ 45	---	4.4	47	---	50	---
	50A Circuit breaker		220	7.6	25,800	2.4	50	---	50	---	4.4	53	---	60	---
			230	8.3	28,200	2.4	50	---	50	---	4.4	53	---	60	---
			240	9.0	30,700	2.4	50	---	50	---	4.4	53	---	60	---
10 kW 6 lbs.	ECB29-10 (28K35)	2	208	7.5	25,600	2.4	48	---	⁴ 50	---	4.4	55	---	60	---
	Terminal block		220	8.4	28,700	2.4	55	---	60	---	4.4	58	---	60	---
	ECB29-10CB (28K36)		230	9.2	31,400	2.4	55	---	60	---	4.4	58	---	60	---
	60A Circuit breaker		240	10.0	34,100	2.4	55	---	60	---	4.4	58	---	60	---
12.5 kW 10 lbs.	ECB29-12.5CB (28K37)	3	208	9.4	32,000	2.4	22	31	25	⁴ 45	4.4	25	31	25	⁴ 45
	(1) 25A & (1) 50A Circuit breaker		220	10.5	35,800	2.4	25	35	25	50	4.4	28	35	30	50
			230	11.5	39,200	2.4	25	35	25	50	4.4	28	35	30	50
			240	12.5	42,600	2.4	25	35	25	50	4.4	28	35	30	50
15 kW 12 lbs.	ECB29-15CB (28K38)	3	208	11.3	38,400	2.4	26	37	30	⁴ 50	4.4	29	37	30	⁴ 50
	(1) 30A & (1) 60A Circuit breaker		220	12.6	43,000	2.4	29	42	30	60	4.4	32	42	35	60
			230	13.5	47,000	2.4	29	42	30	60	4.4	32	42	35	60
			240	15.0	51,200	2.4	29	42	30	60	4.4	32	42	35	60
20 kW 19 lbs.	ECB29-20CB (11L31)	4	208	15.0	51,200	2.4	45	41	⁴ 45	60	4.4	47	41	50	60
	(1) 50A & (1) 60A Circuit breaker		220	16.8	57,300	2.4	50	46	50	60	4.4	52	46	60	60
			230	18.4	62,700	2.4	50	46	50	60	4.4	52	46	60	60
			240	20.0	68,200	2.4	50	46	50	60	4.4	52	46	60	60
THREE PHASE ELECTRIC HEAT						CB28UH-036				CB28UH-042					
8 kW 5 lbs.	ECB29-8 (28K42)	3	208	6.0	20,500	2.4	24	---	25	---	4.4	27	---	30	---
	Terminal Block		220	6.7	22,900	2.4	27	---	30	---	4.4	30	---	30	---
			230	7.3	25,100	2.4	27	---	30	---	4.4	30	---	30	---
			240	8.0	27,300	2.4	27	---	30	---	4.4	30	---	30	---
10 kW 6 lbs.	ECB29-10 (28K43)	3	208	7.5	25,600	2.4	29	---	30	---	4.4	32	---	35	---
	Terminal block		220	8.4	28,700	2.4	33	---	35	---	4.4	36	---	40	---
			230	9.2	31,400	2.4	33	---	35	---	4.4	36	---	40	---
			240	10.0	34,100	2.4	33	---	35	---	4.4	36	---	40	---
15 kW 12 lbs.	ECB29-15CB (28K44)	3	208	11.3	38,400	2.4	42	---	⁴ 45	---	3.6	45	---	³ 45	---
	(1) 50A Circuit breaker		220	12.6	43,000	2.4	48	---	50	---	3.6	51	---	60	---
			230	13.5	47,000	2.4	48	---	50	---	3.6	51	---	60	---
			240	15.0	51,200	2.4	48	---	50	---	3.6	51	---	60	---
20 kW 19 lbs.	ECB29-20CB (28K45)	6	208	15.0	51,200	3.8	29	21	30	⁴ 30	Not Available				
	(2) 35A Circuit breaker		220	16.8	57,300	3.8	33	24	35	35					
			230	18.4	62,700	3.8	33	24	35	35					
			240	20.0	68,200	3.8	33	24	35	35					

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only — does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

³ HACR type breaker or fuse.

⁴ Bold text indicates that the circuit breaker on "CB" circuit breaker models must be replaced (field provided) with size noted.

TABLE 6- ELECTRIC HEAT DATA - CB28UH-048 & CB28UH-060

SINGLE PHASE ELECTRIC HEAT						CB28UH-048									CB28UH-060								
Model Number	No. of Steps	Input			Blower Motor Full Load Amps	2 Minimum Circuit Ampacity			3 Maximum Overcurrent Protection			Blower Motor Full Load Amps	2 Minimum Circuit Ampacity			3 Maximum Overcurrent Protection							
		Volts	kW	1 Btuh		Circuit 1	Circuit 2	Circuit 3	Circuit 1	Circuit 2	Circuit 3		Circuit 1	Circuit 2	Circuit 3	Circuit 1	Circuit 2	Circuit 3					
5 kW 4 lbs. ECB29-5 (28K31) Terminal Block ECB29-5CB (28K32) 30A Circuit breaker	1	208	3.8	12,800	4.5	29	---	---	30	---	---	4.6	29	---	---	30	---	---					
		220	4.2	14,300	4.5	32	---	---	35	---	---	4.6	32	---	---	35	---	---					
		230	4.6	15,700	4.5	32	---	---	35	---	---	4.6	32	---	---	35	---	---					
		240	5.0	17,100	4.5	32	---	---	35	---	---	4.6	32	---	---	35	---	---					
6 kW 4 lbs. ECB29-6 (47L22) Terminal Block ECB29-6CB (47L23) 35A Circuit breaker	1	208	4.5	15,400	4.5	33	---	---	35	---	---	4.6	33	---	---	35	---	---					
		220	5.0	17,100	4.5	37	---	---	40	---	---	4.6	37	---	---	40	---	---					
		230	5.5	18,800	4.5	37	---	---	40	---	---	4.6	37	---	---	40	---	---					
		240	6.0	20,500	4.5	37	---	---	40	---	---	4.5	37	---	---	40	---	---					
8 kW 5 lbs. ECB29-8 (28K33) Terminal Block ECB29-8CB (28K34) 45A Circuit breaker	2	208	6.0	20,500	4.5	42	---	---	45	---	---	4.6	42	---	---	45	---	---					
		220	6.7	22,900	4.5	48	---	---	50	---	---	4.6	48	---	---	50	---	---					
		230	7.3	25,100	4.5	48	---	---	50	---	---	4.6	48	---	---	50	---	---					
		240	8.0	27,300	4.5	48	---	---	50	---	---	4.6	48	---	---	50	---	---					
9 kW 5 lbs. ECB29-9CB (10L11) 50A Circuit breaker	2	208	6.8	23,100	4.5	47	---	---	50	---	---	4.6	47	---	---	50	---	---					
		220	7.6	25,800	4.5	53	---	---	60	---	---	4.6	53	---	---	60	---	---					
		230	8.3	28,200	4.5	53	---	---	60	---	---	4.6	53	---	---	60	---	---					
		240	9.0	30,700	4.5	53	---	---	60	---	---	4.6	53	---	---	60	---	---					
10 kW 6 lbs. ECB29-10 (28K35) Terminal Block ECB29-10CB (28K36) 60A Circuit breaker	2	208	7.5	25,600	4.5	51	---	---	60	---	---	4.6	51	---	---	60	---	---					
		220	8.4	28,700	4.5	58	---	---	60	---	---	4.6	58	---	---	60	---	---					
		230	9.2	31,400	4.5	58	---	---	60	---	---	4.6	58	---	---	60	---	---					
		240	10.0	34,100	4.5	58	---	---	60	---	---	4.6	58	---	---	60	---	---					
12.5 kW 10 lbs. ECB29-12.5CB (28K37) (1)25A & (1) 50A Circuit Breaker	3	208	9.4	32,000	4.5	25	31	---	25	⁴ 45	---	4.6	25	31	---	25	⁴ 45	---					
		220	10.5	35,800	4.5	27	35	---	30	50	---	4.6	28	35	---	30	50	---					
		230	11.5	39,200	4.5	27	35	---	30	50	---	4.6	28	35	---	30	50	---					
		240	12.5	42,600	4.5	27	35	---	30	50	---	4.6	28	35	---	30	50	---					
15 kW 12 lbs. (1)30A & (1)60A Circuit breaker	3	208	11.3	38,400	4.5	29	37	---	30	⁴ 50	---	4.6	29	37	---	30	⁴ 50	---					
		220	12.6	43,000	4.5	32	42	---	35	60	---	4.6	32	42	---	35	60	---					
		230	13.5	47,000	4.5	32	42	---	35	60	---	4.6	32	42	---	35	60	---					
		240	15.0	51,200	4.5	32	42	---	35	60	---	4.6	32	42	---	35	60	---					
20 kW 19 lbs. (1)50A & (1)60A Circuit breaker	4	208	15.0	51,200	4.5	47	41	---	50	60	---	4.6	47	41	---	50	60	---					
		220	16.8	57,300	4.5	53	46	---	60	60	---	4.6	53	46	---	60	60	---					
		230	18.4	62,700	4.5	53	46	---	60	60	---	4.6	53	46	---	60	60	---					
		240	20.0	68,200	4.5	53	46	---	60	60	---	4.6	53	46	---	60	60	---					
25 kW 19 lbs. (3) 50A Circuit breaker	6	208	18.8	64,100	4.5	44	31	31	⁴ 45	⁴ 45	⁴ 45	4.6	44	31	31	⁴ 45	⁴ 45	⁴ 45					
		220	21.0	71,700	4.5	49	35	35	50	50	50	4.6	50	35	35	50	50	50					
		230	23.0	78,300	4.5	49	35	35	50	50	50	4.6	50	35	35	50	50	50					
		240	25.0	85,300	4.5	49	35	35	50	50	50	4.6	50	35	35	50	50	50					
30 kW 19 lbs. (3) 60A Circuit breaker	6	208	22.5	76,900	Not Available						4.6	51	37	37	60	⁴ 50	⁴ 50						
		220	25.2	86,000							4.6	58	42	42	60	60	60						
		230	27.5	94,000							4.6	58	42	42	60	60	60						
		240	30.0	102,400							4.6	58	42	42	60	60	60						
THREE PHASE ELECTRIC HEAT						CB28UH-048									CB28UH-060								
8 kW 5 lbs. ECB29-8 (28K42) Terminal Block	3 steps	208	6.0	20,500	4.5	27	---	---	30	---	---	4.6	27	---	---	30	---	---					
		220	6.7	22,900	4.5	30	---	---	30	---	---	4.6	30	---	---	30	---	---					
		230	7.3	25,100	4.5	30	---	---	30	---	---	4.6	30	---	---	30	---	---					
		240	8.0	27,300	4.5	30	---	---	30	---	---	4.6	30	---	---	30	---	---					
10 kW 6 lbs. ECB29-10 (28K43) Terminal Block	3 steps	208	7.5	25,600	4.5	32	---	---	35	---	---	4.6	32	---	---	35	---	---					
		220	8.4	28,700	4.5	36	---	---	40	---	---	4.6	36	---	---	40	---	---					
		230	9.2	31,400	4.5	36	---	---	40	---	---	4.6	36	---	---	40	---	---					
		240	10.0	34,100	4.5	36	---	---	40	---	---	4.6	36	---	---	40	---	---					
15 kW 12 lbs. (1) 50A Circuit breaker	3 steps	208	11.3	38,400	4.5	45	---	---	⁴ 45	---	---	4.6	45	---	---	⁴ 45	---	---					
		220	12.6	43,000	4.5	51	---	---	60	---	---	4.6	51	---	---	60	---	---					
		230	13.5	47,000	4.5	51	---	---	60	---	---	4.6	51	---	---	60	---	---					
		240	15.0	51,200	4.5	51	---	---	60	---	---	4.6	51	---	---	60	---	---					
20 kW 19 lbs. (2) 35A Circuit breaker	6 steps	208	15.0	51,200	4.5	32	21	---	35	⁴ 30	---	4.6	32	21	---	35	⁴ 30	---					
		220	16.8	57,300	4.5	36	24	---	40	35	---	4.6	36	24	---	40	35	---					
		230	18.4	62,700	4.5	36	24	---	40	35	---	4.6	36	24	---	40	35	---					
		240	20.0	68,200	4.5	36	24	---	40	35	---	4.6	36	24	---	40	35	---					
25 kW 19 lbs. (2) 45A Circuit Breaker	6 steps	208	18.8	64,100	4.5	39	27	---	⁴ 40	40	---	4.6	39	27	---	⁴ 40	40	---					
		220	21.0	71,700	4.5	43	30	---	45	45	---	4.6	43	30	---	45	45	---					
		230	23.0	78,300	4.5	43	30	---	45	45	---	4.6	43	30	---	45	45	---					
		240	25.0	85,300	4.5	43	30	---	45	45	---	4.6	43	30	---	45	45	---					

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only — does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

³ HACR type breaker or fuse.

⁴ Bold text indicates that the circuit breaker on "CB" circuit breaker models must be replaced (field provided) with size noted.

TABLE 7- ELECTRIC HEAT DATA (1 PHASE) - CB29M-21/26 & CB29M-31

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight	Number of Steps	Volts Input	kW Input	**Btuh Input	●Blower Motor Amps	*Minimum Circuit Ampacity		
							Circuit 1	Circuit 2	
↕ 208/230v-1 ph ↕									
CB29M-21/26	2.5 kW	ECB29-2.5 (28K30) 4 lbs. (2 kg)	1 step	208	1.9	6,400	1.5	13	----
				220	2.1	7,200	1.5	14	----
				230	2.3	7,800	1.5	14	----
				240	2.5	8,500	1.5	15	----
	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.5	25	----
				220	4.2	14,300	1.5	26	----
				230	4.6	15,700	1.5	27	----
				240	5.0	17,100	1.5	28	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.5	38	----
				220	6.7	22,900	1.5	40	----
				230	7.3	25,100	1.5	42	----
				240	8.0	27,300	1.5	44	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.5	47	----
				220	8.4	28,700	1.5	50	----
				230	9.2	31,400	1.5	52	----
				240	10.0	34,100	1.5	54	----
CB29M-31	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	2.4	26	----
				220	4.2	14,300	2.4	27	----
				230	4.6	15,700	2.4	28	----
				240	5.0	17,100	2.4	29	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	2.4	39	----
				220	6.7	22,900	2.4	41	----
				230	7.3	25,100	2.4	43	----
				240	8.0	27,300	2.4	45	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	2.4	48	----
				220	8.4	28,700	2.4	51	----
				230	9.2	31,400	2.4	53	----
				240	10.0	34,100	2.4	55	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	2.4	22	38
				220	10.5	35,800	2.4	23	40
				230	11.5	39,200	2.4	24	42
				240	12.5	42,600	2.4	25	44
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	2.4	26	45
				220	12.6	43,000	2.4	27	48
				230	13.5	47,000	2.4	28	49
				240	15.0	51,200	2.4	29	52

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**Electric heater capacity only — does not include additional blower motor heat capacity.

●Minimum circuit ampacity for blower motor only.

TABLE 8- ELECTRIC HEAT DATA (1 PHASE) - CB29M-41 & CB29M-46

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	**Btuh Input	●Blower Motor Amps	*Minimum Circuit Ampacity	
								Circuit 1	Circuit 2
↕ 208/230v-1 ph ↕									
CB29M-41	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	2.4	26	----
				220	4.2	14,300	2.4	27	----
				230	4.6	15,700	2.4	28	----
				240	5.0	17,100	2.4	29	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	2.4	39	----
				220	6.7	22,900	2.4	41	----
				230	7.3	25,100	2.4	43	----
				240	8.0	27,300	2.4	45	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	2.4	48	----
				220	8.4	28,700	2.4	51	----
				230	9.2	31,400	2.4	53	----
				240	10.0	34,100	2.4	55	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	2.4	22	38
				220	10.5	35,800	2.4	23	40
				230	11.5	39,200	2.4	24	42
				240	12.5	42,600	2.4	25	44
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	2.4	26	45
				220	12.6	43,000	2.4	27	48
				230	13.5	47,000	2.4	28	49
				240	15.0	51,200	2.4	29	52
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	2.4	48	45
				220	16.8	57,300	2.4	51	48
				230	18.4	62,700	2.4	53	49
				240	20.0	68,200	2.4	55	52
CB29M-46	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	3.6	27	----
				220	4.2	14,300	3.6	28	----
				230	4.6	15,700	3.6	30	----
				240	5.0	17,100	3.6	31	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	3.6	41	----
				220	6.7	22,900	3.6	43	----
				230	7.3	25,100	3.6	44	----
				240	8.0	27,300	3.6	46	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	3.6	50	----
				220	8.4	28,700	3.6	52	----
				230	9.2	31,400	3.6	55	----
				240	10.0	34,100	3.6	57	----
	12.5 kW	ECB29-12.5CB (28K38) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	3.6	23	38
				220	10.5	35,800	3.6	24	40
				230	11.5	39,200	3.6	25	42
				240	12.5	42,600	3.6	26	44
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	3.6	27	45
				220	12.6	43,000	3.6	28	48
				230	13.5	47,000	3.6	29	49
				240	15.0	51,200	3.6	31	52
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	3.6	50	45
				220	16.8	57,300	3.6	52	48
				230	18.4	62,700	3.6	55	49
				240	20.0	68,200	3.6	57	52

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**Electric heater capacity only — does not include additional blower motor heat capacity. ●Minimum circuit ampacity for blower motor only.

TABLE 9- ELECTRIC HEAT DATA (1 PHASE) - CB29M-51 & CB29M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	**Btuh Input	●Blower Motor Amps	*Minimum Circuit Ampacity		
								Circuit 1	Circuit 2	Circuit 3
◀ 208/230v-1 ph ▶										
CB29M-51	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	3.8	28	----	----
				220	4.2	14,300	3.8	29	----	----
				230	4.6	15,700	3.8	30	----	----
				240	5.0	17,100	3.8	31	----	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 4 lbs. (2 kg)	2 steps	208	6.0	20,500	3.8	41	----	----
				220	6.7	22,900	3.8	43	----	----
				230	7.3	25,100	3.8	44	----	----
				240	8.0	27,300	3.8	47	----	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	3.8	50	----	----
				220	8.4	28,700	3.8	53	----	----
				230	9.2	31,400	3.8	55	----	----
				240	10.0	34,100	3.8	57	----	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	3.8	24	38	----
				220	10.5	35,800	3.8	25	40	----
				230	11.5	39,200	3.8	26	42	----
				240	12.5	42,600	3.8	27	44	----
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	3.8	28	45	----
				220	12.6	43,000	3.8	29	48	----
				230	13.5	47,000	3.8	30	49	----
				240	15.0	51,200	3.8	31	52	----
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	3.8	50	45	----
				220	16.8	57,300	3.8	53	48	----
				230	18.4	62,700	3.8	55	49	----
				240	20.0	68,200	3.8	57	52	----
	25 kW	ECB29-25CB (28K40) 18 lbs. (8 kg)	6 steps	208	18.8	64,100	3.8	42	38	38
				220	21.0	71,700	3.8	45	40	40
				230	23.0	78,300	3.8	46	42	42
				240	25.0	85,300	3.8	48	44	44
CB29M-65	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	4.6	29	----	----
				220	4.2	14,300	4.6	30	----	----
				230	4.6	15,700	4.6	31	----	----
				240	5.0	17,100	4.6	32	----	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 4 lbs. (2 kg)	2 steps	208	6.0	20,500	4.6	42	----	----
				220	6.7	22,900	4.6	44	----	----
				230	7.3	25,100	4.6	45	----	----
				240	8.0	27,300	4.6	48	----	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	4.6	51	----	----
				220	8.4	28,700	4.6	54	----	----
				230	9.2	31,400	4.6	56	----	----
				240	10.0	34,100	4.6	58	----	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	4.6	25	38	----
				220	10.5	35,800	4.6	26	40	----
				230	11.5	39,200	4.6	27	42	----
				240	12.5	42,600	4.6	28	44	----
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	4.6	28	45	----
				220	12.6	43,000	4.6	30	48	----
				230	13.5	47,000	4.6	30	49	----
				240	15.0	51,200	4.6	32	52	----
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	4.6	51	45	----
				220	16.8	57,300	4.6	54	48	----
				230	18.4	62,700	4.6	56	49	----
				240	20.0	68,200	4.6	58	52	----
	25 kW	ECB29-25CB (28K40) 18 lbs. (8 kg)	6 steps	208	18.8	64,100	4.6	43	38	38
				220	21.0	71,700	4.6	46	40	40
				230	23.0	78,300	4.6	47	42	42
				240	25.0	85,300	4.6	50	44	44
30 kW	ECB29-30CB (28K41) 19 lbs. (9 kg)	6 steps	208	22.5	76,900	4.6	51	45	45	
			220	25.2	86,000	4.6	54	48	48	
			230	27.5	94,000	4.6	56	49	49	
			240	30.0	102,400	4.6	58	52	52	

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**Electric heater capacity only — does not include additional blower motor heat capacity.

●Minimum circuit ampacity for blower motor only.

TABLE 10- ELECTRIC HEAT DATA (3 PHASE) - CB29M-41 & CB29M-46, CB29M-51 & CB29M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight	Number of Steps	Volts Input	kW Input	**Btuh Input	●Blower Motor Amps	*Minimum Circuit Ampacity		
							Circuit 1	Circuit 2	
↕ 208/230v-3 ph ↕									
CB29M-41	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	2.4	24	----
				220	6.7	22,900	2.4	25	----
				230	7.3	25,100	2.4	26	----
				240	8.0	27,300	2.4	27	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	2.4	29	----
				220	8.4	28,700	2.4	31	----
				230	9.2	31,400	2.4	32	----
				240	10.0	34,100	2.4	33	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	2.4	42	----
				220	12.6	43,000	2.4	44	----
				230	13.5	47,000	2.4	45	----
				240	15.0	51,200	2.4	48	----
CB29M-46	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	3.6	25	----
				220	6.7	22,900	3.6	27	----
				230	7.3	25,100	3.6	27	----
				240	8.0	27,300	3.6	29	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	3.6	31	----
				220	8.4	28,700	3.6	32	----
				230	9.2	31,400	3.6	33	----
				240	10.0	34,100	3.6	35	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	3.6	44	----
				220	12.6	43,000	3.6	46	----
				230	13.5	47,000	3.6	47	----
				240	15.0	51,200	3.6	50	----
CB29M-51	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	3.8	26	----
				220	6.7	22,900	3.8	27	----
				230	7.3	25,100	3.8	28	----
				240	8.0	27,300	3.8	29	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	3.8	31	----
				220	8.4	28,700	3.8	32	----
				230	9.2	31,400	3.8	34	----
				240	10.0	34,100	3.8	35	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	3.8	44	----
				220	12.6	43,000	3.8	46	----
				230	13.5	47,000	3.8	47	----
				240	15.0	51,200	3.8	50	----
	20 kW	ECB29-20CB (28K45) 19 lbs. (9 kg)	6 steps	208	15.0	51,200	3.8	31	26
				220	16.8	57,300	3.8	32	28
				230	18.4	62,700	3.8	34	29
				240	20.0	68,200	3.8	35	30
	25 kW	ECB29-25CB (28K46) 19 lbs. (9 kg)	6 steps	208	18.8	64,100	3.8	37	33
				220	21.0	71,700	3.8	39	34
				230	23.0	78,300	3.8	41	36
				240	25.0	85,300	3.8	43	38
CB29M-65	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	4.6	27	----
				220	6.7	22,900	4.6	28	----
				230	7.3	25,100	4.6	29	----
				240	8.0	27,300	4.6	30	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	4.6	32	----
				220	8.4	28,700	4.6	33	----
				230	9.2	31,400	4.6	35	----
				240	10.0	34,100	4.6	36	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	4.6	45	----
				220	12.6	43,000	4.6	47	----
				230	13.5	47,000	4.6	48	----
				240	15.0	51,200	4.6	51	----
	20 kW	ECB29-20CB (28K45) 19 lbs. (9 kg)	6 steps	208	15.0	51,200	4.6	32	26
				220	16.8	57,300	4.6	33	28
				230	18.4	62,700	4.6	35	29
				240	20.0	68,200	4.6	36	30
25 kW	ECB29-25CB (28K46) 19 lbs. (9 kg)	6 steps	208	18.8	64,100	4.6	38	33	
			220	21.0	71,700	4.6	40	34	
			230	23.0	78,300	4.6	42	36	
			240	25.0	85,300	4.6	44	38	

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**Electric heater capacity only — does not include additional blower motor heat capacity.

●Minimum circuit ampacity for blower motor only.

TABLE 11- ELECTRIC HEAT DATA (3 PHASE) - CB29M-41, CB29M-51 CB29M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	**Btuh Input	●Blower Motor Amps	*Minimum Circuit Ampacity
↕ 460v-3 ph ↕								
CB29M-41	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	1.3	15
				460	9.2	31,400	1.3	16
				480	10.0	34,100	1.3	17
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	1.3	22
				460	13.8	47,000	1.3	23
				480	15.0	51,200	1.3	24
CB29M-51	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	1.9	16
				460	9.2	31,400	1.9	17
				480	10.0	34,100	1.9	17
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	1.9	23
				460	13.8	47,000	1.9	24
				480	15.0	51,200	1.9	25
	20 kW	ECB29-20 (28K49) 18 lbs. (8 kg)	3 steps	440	16.8	57,300	1.9	30
				460	18.4	62,700	1.9	31
				480	20.0	68,200	1.9	32
	25 kW	ECB29-25 (28K50) 18 lbs. (8 kg)	3 steps	440	21.0	71,700	1.9	37
				460	23.0	78,300	1.9	39
				480	25.0	85,300	1.9	40
CB29M-65	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	2.3	17
				460	9.2	31,400	2.3	17
				480	10.0	34,100	2.3	18
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	2.3	24
				460	13.8	47,000	2.3	25
				480	15.0	51,200	2.3	25
	20 kW	ECB29-20 (28K49) 18 lbs. (8 kg)	3 steps	440	16.8	57,300	2.3	30
				460	18.4	62,700	2.3	32
				480	20.0	68,200	2.3	33
	25 kW	ECB29-25 (28K50) 18 lbs. (8 kg)	3 steps	440	21.0	71,700	2.3	37
				460	23.0	78,300	2.3	39
				480	25.0	85,300	2.3	40
↕ †575v-3 ph ↕								
†CB29M-51	20 kW	ECB29-20 (28K51) 18 lbs. (8 kg)	3 steps	550	16.8	57,300	††1.9	24
				575	18.4	62,700	††1.9	26
				600	20.0	68,200	††1.9	26
	25 kW	ECB29-25 (28K52) 18 lbs. (8 kg)	3 steps	550	21.0	71,700	††1.9	30
				575	23.0	78,300	††1.9	31
				600	25.0	85,300	††1.9	32
†CB29M-65	20 kW	ECB29-20 (28K51) 18 lbs. (8 kg)	3 steps	550	16.8	57,300	††2.3	25
				575	18.4	62,700	††2.3	26
				600	20.0	68,200	††2.3	27
	25 kW	ECB29-25 (28K52) 18 lbs. (8 kg)	3 steps	550	21.0	71,700	††2.3	30
				575	23.0	78,300	††2.3	32
				600	25.0	85,300	††2.3	33

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**Electric heater capacity only — does not include additional blower motor heat capacity.

●Minimum circuit ampacity for blower motor only.

†NOTE - ALL 575v ELECTRIC HEATERS ARE USED WITH CB29M-51 & CB29M-65 460v MODEL BLOWER COIL UNITS - A STEP-DOWN TRANSFORMER FOR THE BLOWER COIL UNIT IS FURNISHED WITH ALL 575v ELECTRIC HEATERS.

††Blower motor is rated at 460v.

TABLE 12- ELECTRIC HEAT DATA (1 PHASE) - CB30M-21/26 & CB30M-31

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight	Number of Steps	Volts Input	kW Input	①Btuh Input	②Blower Motor Amps	†Minimum Circuit Ampacity		
							Circuit 1	Circuit 2	
↕ 208/230v-1 ph ↕									
CB30M-21/26 CB30U-21/26	2.5 kW	ECB29-2.5 (28K30) 4 lbs. (2 kg)	1 step	208	1.9	6,400	1.5	13	----
				220	2.1	7,200	1.5	14	----
				230	2.3	7,800	1.5	14	----
				240	2.5	8,500	1.5	15	----
	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.5	25	----
				220	4.2	14,300	1.5	26	----
				230	4.6	15,700	1.5	27	----
				240	5.0	17,100	1.5	28	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.5	38	----
				220	6.7	22,900	1.5	40	----
				230	7.3	25,100	1.5	42	----
				240	8.0	27,300	1.5	44	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.5	47	----
				220	8.4	28,700	1.5	50	----
				230	9.2	31,400	1.5	52	----
				240	10.0	34,100	1.5	54	----
CB30M-31 CB30U-31	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.73	25	----
				220	4.2	14,300	1.73	26	----
				230	4.6	15,700	1.73	27	----
				240	5.0	17,100	1.73	28	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.73	38	----
				220	6.7	22,900	1.73	40	----
				230	7.3	25,100	1.73	42	----
				240	8.0	27,300	1.73	44	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.73	47	----
				220	8.4	28,700	1.73	50	----
				230	9.2	31,400	1.73	52	----
				240	10.0	34,100	1.73	54	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	1.73	21	38
				220	10.5	35,800	1.73	22	40
				230	11.5	39,200	1.73	23	42
				240	12.5	42,600	1.73	24	43
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	1.73	25	45
				220	12.6	43,000	1.73	26	48
				230	13.5	47,000	1.73	27	52
				240	15.0	51,200	1.73	28	52

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

① Electric heater capacity only — does not include additional blower motor heat capacity.

② Minimum circuit ampacity for blower motor only.

TABLE 13- ELECTRIC HEAT DATA (1 PHASE) - CB30M-41 & CB30M-46

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight	Number of Steps	Volts Input	kW Input	①Btuh Input	②Blower Motor Amps	†Minimum Circuit Ampacity		
							Circuit 1	Circuit 2	
↕ 208/230v-1 ph ↕									
CB30M-41	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.73	25	----
				220	4.2	14,300	1.73	26	----
				230	4.6	15,700	1.73	27	----
				240	5.0	17,100	1.73	28	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.73	38	----
				220	6.7	22,900	1.73	40	----
				230	7.3	25,100	1.73	42	----
				240	8.0	27,300	1.73	44	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.73	47	----
				220	8.4	28,700	1.73	50	----
				230	9.2	31,400	1.73	52	----
				240	10.0	34,100	1.73	54	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	1.73	21	38
				220	10.5	35,800	1.73	22	40
				230	11.5	39,200	1.73	23	42
				240	12.5	42,600	1.73	24	43
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	1.73	25	45
				220	12.6	43,000	1.73	26	48
				230	13.5	47,000	1.73	27	50
				240	15.0	51,200	1.73	28	52
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	1.73	47	45
				220	16.8	57,300	1.73	50	48
				230	18.4	62,700	1.73	52	50
				240	20.0	68,200	1.73	54	52
CB30M-46 CB30U-41/46	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	2.4	26	----
				220	4.2	14,300	2.4	27	----
				230	4.6	15,700	2.4	28	----
				240	5.0	17,100	2.4	29	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 5 lbs. (2 kg)	2 steps	208	6.0	20,500	2.4	39	----
				220	6.7	22,900	2.4	41	----
				230	7.3	25,100	2.4	43	----
				240	8.0	27,300	2.4	45	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	2.4	48	----
				220	8.4	28,700	2.4	51	----
				230	9.2	31,400	2.4	53	----
				240	10.0	34,100	2.4	55	----
	12.5 kW	ECB29-12.5CB (28K38) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	2.4	22	38
				220	10.5	35,800	2.4	23	40
				230	11.5	39,200	2.4	24	42
				240	12.5	42,600	2.4	25	43
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	2.4	26	45
				220	12.6	43,000	2.4	27	48
				230	13.5	47,000	2.4	28	50
				240	15.0	51,200	2.4	29	52
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	2.4	48	45
				220	16.8	57,300	2.4	51	48
				230	18.4	62,700	2.4	53	50
				240	20.0	68,200	2.4	55	52

† Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

① Electric heater capacity only — does not include additional blower motor heat capacity. ② Minimum circuit ampacity for blower motor only.

TABLE 14- ELECTRIC HEAT DATA (1 PHASE) - CB30M-51 & CB30M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	①Btuh Input	②Blower Motor Amps	†Minimum Circuit Ampacity		
								Circuit 1	Circuit 2	Circuit 3
▼ 208/230v-1 ph ▼										
CB30M-51 CB30U-51	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	2.4	26	----	----
				220	4.2	14,300	2.4	27	----	----
				230	4.6	15,700	2.4	28	----	----
				240	5.0	17,100	2.4	29	----	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 4 lbs. (2 kg)	2 steps	208	6.0	20,500	2.4	39	----	----
				220	6.7	22,900	2.4	41	----	----
				230	7.3	25,100	2.4	43	----	----
				240	8.0	27,300	2.4	45	----	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	2.4	48	----	----
				220	8.4	28,700	2.4	51	----	----
				230	9.2	31,400	2.4	53	----	----
				240	10.0	34,100	2.4	55	----	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	2.4	22	38	----
				220	10.5	35,800	2.4	23	40	----
				230	11.5	39,200	2.4	24	42	----
				240	12.5	42,600	2.4	25	43	----
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	2.4	26	45	----
				220	12.6	43,000	2.4	27	48	----
				230	13.5	47,000	2.4	28	49	----
				240	15.0	51,200	2.4	29	52	----
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	2.4	48	45	----
				220	16.8	57,300	2.4	51	48	----
				230	18.4	62,700	2.4	53	49	----
				240	20.0	68,200	2.4	55	52	----
	25 kW	ECB29-25CB (28K40) 18 lbs. (8 kg)	5 steps	208	18.8	64,100	2.4	41	38	38
				220	21.0	71,700	2.4	43	40	40
				230	23.0	78,300	2.4	45	42	42
				240	25.0	85,300	2.4	47	43	43
CB30M-65 CB30U-65	5 kW	ECB29-5 (28K31) ECB29-5CB (28K32) 4 lbs. (2 kg)	1 step	208	3.8	12,800	3.9	28	----	----
				220	4.2	14,300	3.9	29	----	----
				230	4.6	15,700	3.9	30	----	----
				240	5.0	17,100	3.9	31	----	----
	8 kW	ECB29-8 (28K33) ECB29-8CB (28K34) 4 lbs. (2 kg)	2 steps	208	6.0	20,500	3.9	41	----	----
				220	6.7	22,900	3.9	43	----	----
				230	7.3	25,100	3.9	45	----	----
				240	8.0	27,300	3.9	47	----	----
	10 kW	ECB29-10 (28K35) ECB29-10CB (28K36) 5 lbs. (2 kg)	2 steps	208	7.5	25,600	3.9	50	----	----
				220	8.4	28,700	3.9	53	----	----
				230	9.2	31,400	3.9	55	----	----
				240	10.0	34,100	3.9	57	----	----
	12.5 kW	ECB29-12.5CB (28K37) 10 lbs. (5 kg)	3 steps	208	9.4	32,000	3.9	24	38	----
				220	10.5	35,800	3.9	25	40	----
				230	11.5	39,200	3.9	26	42	----
				240	12.5	42,600	3.9	27	43	----
	15 kW	ECB29-15CB (28K38) 10 lbs. (5 kg)	3 steps	208	11.3	38,400	3.9	28	45	----
				220	12.6	43,000	3.9	29	48	----
				230	13.5	47,000	3.9	29	50	----
				240	15.0	51,200	3.9	31	52	----
	20 kW	ECB29-20CB (28K39) 14 lbs. (6 kg)	4 steps	208	15.0	51,200	3.9	50	45	----
				220	16.8	57,300	3.9	53	48	----
				230	18.4	62,700	3.9	55	50	----
				240	20.0	68,200	3.9	57	52	----
	25 kW	ECB29-25CB (28K40) 18 lbs. (8 kg)	5 steps	208	18.8	64,100	3.9	43	38	38
				220	21.0	71,700	3.9	45	40	40
				230	23.0	78,300	3.9	47	42	42
				240	25.0	85,300	3.9	48	43	43
30 kW	ECB29-30CB (28K41) 19 lbs. (9 kg)	5 steps	208	22.5	76,900	3.9	50	45	45	
			220	25.2	86,000	3.9	53	48	48	
			230	27.5	94,000	3.9	55	50	50	
			240	30.0	102,400	3.9	57	52	52	

† Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

① Electric heater capacity only — does not include additional blower motor heat capacity.

② Minimum circuit ampacity for blower motor only.

TABLE 15- ELECTRIC HEAT DATA (3 PHASE) - CB30M-41, CB30M-46, CB30M-51 & CB30M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	①Btuh Input	②Blower Motor Amps	†Minimum Circuit Ampacity	
								Circuit 1	Circuit 2
↔ 208/230v-3 ph ↔									
CB30M-41	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	1.73	23	----
				220	6.7	22,900	1.73	24	----
				230	7.3	25,100	1.73	25	----
				240	8.0	27,300	1.73	26	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	1.73	28	----
				220	8.4	28,700	1.73	30	----
				230	9.2	31,400	1.73	31	----
				240	10.0	34,100	1.73	32	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	1.73	41	----
				220	12.6	43,000	1.73	44	----
				230	13.5	47,000	1.73	45	----
				240	15.0	51,200	1.73	47	----
CB30M-46 CB30U-41/46	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	2.4	24	----
				220	6.7	22,900	2.4	25	----
				230	7.3	25,100	2.4	26	----
				240	8.0	27,300	2.4	27	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	2.4	29	----
				220	8.4	28,700	2.4	31	----
				230	9.2	31,400	2.4	32	----
				240	10.0	34,100	2.4	33	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	2.4	42	----
				220	12.6	43,000	2.4	44	----
				230	13.5	47,000	2.4	45	----
				240	15.0	51,200	2.4	48	----
CB30M-51 CB30U-51	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	2.4	24	----
				220	6.7	22,900	2.4	25	----
				230	7.3	25,100	2.4	26	----
				240	8.0	27,300	2.4	27	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	2.4	29	----
				220	8.4	28,700	2.4	31	----
				230	9.2	31,400	2.4	32	----
				240	10.0	34,100	2.4	33	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	2.4	42	----
				220	12.6	43,000	2.4	44	----
				230	13.5	47,000	2.4	45	----
				240	15.0	51,200	2.4	48	----
	20 kW	ECB29-20CB (28K45) 19 lbs. (9 kg)	6 steps	208	15.0	51,200	2.4	29	26
				220	16.8	57,300	2.4	31	28
				230	18.4	62,700	2.4	32	29
				240	20.0	68,200	2.4	33	30
	25 kW	ECB29-25CB (28K46) 19 lbs. (9 kg)	6 steps	208	18.8	64,100	2.4	36	33
				220	21.0	71,700	2.4	37	34
				230	23.0	78,300	2.4	39	36
				240	25.0	85,300	2.4	41	38
CB30M-65 CB30U-65	8 kW	ECB29-8 (28K42) 5 lbs. (2 kg)	3 steps	208	6.0	20,500	3.9	26	----
				220	6.7	22,900	3.9	27	----
				230	7.3	25,100	3.9	28	----
				240	8.0	27,300	3.9	29	----
	10 kW	ECB29-10 (28K43) 6 lbs. (3 kg)	3 steps	208	7.5	25,600	3.9	31	----
				220	8.4	28,700	3.9	32	----
				230	9.2	31,400	3.9	34	----
				240	10.0	34,100	3.9	35	----
	15 kW	ECB29-15CB (28K44) 9 lbs. (4 kg)	3 steps	208	11.3	38,400	3.9	44	----
				220	12.6	43,000	3.9	46	----
				230	13.5	47,000	3.9	47	----
				240	15.0	51,200	3.9	50	----
	20 kW	ECB29-20CB (28K45) 19 lbs. (9 kg)	6 steps	208	15.0	51,200	3.9	31	26
				220	16.8	57,300	3.9	32	28
				230	18.4	62,700	3.9	34	29
				240	20.0	68,200	3.9	35	30
	25 kW	ECB29-25CB (28K46) 19 lbs. (9 kg)	6 steps	208	18.8	64,100	3.9	38	33
				220	21.0	71,700	3.9	39	34
				230	23.0	78,300	3.9	41	36
				240	25.0	85,300	3.9	43	38

† Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

① Electric heater capacity only — does not include additional blower motor heat capacity.

② Minimum circuit ampacity for blower motor only.

TABLE 16- ELECTRIC HEAT DATA (3 PHASE) - CB30M-41, CB30M-51 & CB30M-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	①Btuh Input	②Blower Motor Amps	†Minimum Circuit Ampacity
↕ 460v-3 ph ↕								
CB30M-41	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	1.1	15
				460	9.2	31,400	1.1	16
				480	10.0	34,100	1.1	16
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	1.1	22
				460	13.8	47,000	1.1	23
				480	15.0	51,200	1.1	24
CB30M-51	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	1.3	16
				460	9.2	31,400	1.3	16
				480	10.0	34,100	1.3	17
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	1.3	22
				460	13.8	47,000	1.3	23
				480	15.0	51,200	1.3	24
	20 kW	ECB29-20 (28K49) 18 lbs. (8 kg)	3 steps	440	16.8	57,300	1.3	29
				460	18.4	62,700	1.3	29
				480	20.0	68,200	1.3	32
	25 kW	ECB29-25 (28K50) 18 lbs. (8 kg)	3 steps	440	21.0	71,700	1.3	36
				460	23.0	78,300	1.3	38
				480	25.0	85,300	1.3	39
CB30M-65	10 kW	ECB29-10 (28K47) 12 lbs. (5 kg)	3 steps	440	8.4	28,700	1.3	16
				460	9.2	31,400	1.3	17
				480	10.0	34,100	1.3	17
	15 kW	ECB29-15 (28K48) 12 lbs. (5 kg)	3 steps	440	12.6	43,000	1.9	23
				460	13.8	47,000	1.9	24
				480	15.0	51,200	1.9	25
	20 kW	ECB29-20 (28K49) 18 lbs. (8 kg)	3 steps	440	16.8	57,300	1.9	30
				460	18.4	62,700	1.9	31
				480	20.0	68,200	1.9	32
	25 kW	ECB29-25 (28K50) 18 lbs. (8 kg)	3 steps	440	21.0	71,700	1.9	37
				460	23.0	78,300	1.9	39
				480	25.0	85,300	1.9	40
↕ ③575v-3 ph ↕								
†CB30M-51	20 kW	ECB29-20 (28K51) 18 lbs. (8 kg)	3 steps	550	16.8	57,300	④1.3	24
				575	18.4	62,700	④1.3	25
				600	20.0	68,200	④1.3	26
	25 kW	ECB29-25 (28K52) 18 lbs. (8 kg)	3 steps	550	21.0	71,700	④1.3	29
				575	23.0	78,300	④1.3	31
				600	25.0	85,300	④1.3	32
†CB30M-65	20 kW	ECB29-20 (28K51) 18 lbs. (8 kg)	3 steps	550	16.8	57,300	④1.9	24
				575	18.4	62,700	④1.9	26
				600	20.0	68,200	④1.9	26
	25 kW	ECB29-25 (28K52) 18 lbs. (8 kg)	3 steps	550	21.0	71,700	④1.9	30
				575	23.0	78,300	④1.9	31
				600	25.0	85,300	④1.9	32

† Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

① Electric heater capacity only — does not include additional blower motor heat capacity.

② Minimum circuit ampacity for blower motor only.

③ ALL 575v ELECTRIC HEATERS ARE USED WITH 460v CB30M-51 & CB30M-65 MODEL BLOWER COIL UNITS - A 575v to 460v STEP-DOWN TRANSFORMER FOR THE BLOWER COIL UNIT IS FURNISHED WITH ALL 575v ELECTRIC HEATERS.

④ Blower motor is rated at 460v.

IV-CONFIGURATION MODIFICATIONS

CB28UH units can be installed in upflow, horizontal right discharge or horizontal left discharge. CB29M and CB30M units may be installed in the upflow, downflow, horizontal right-hand discharge or horizontal left-hand discharge orientation.

The units come from the factory ready for upflow or horizontal right-hand discharge installation. If the unit needs to be modified from its original configuration, use the following procedures. All procedures assume the unit has not been modified from the factory.

A-Disassembly of CB30M Cabinet

For tight applications where a modular design is an advantage, the CB30M unit can be easily disassembled and re-assembled. By removing four screws, the coil lifts off so the unit is in two parts. To disassemble the CB30M, use the following procedure.

- 1- Remove the two black screws located just above the seam in the top half of the unit.
- 2- Remove the front access panel and remove the two screws on the inside of the top half of the cabinet on both sides.
- 3- Lift the top section apart from the bottom section.
- 4- To lighten the cabinet for lifting, the blower and coil assemblies can also be removed.
- 5- Reassemble once the cabinet is in place.

B-Upflow Application

- 1- Discard drip shields, if applicable. The shields are used for downflow applications only and are located with the foam pads on top of new units.
- 2- For best efficiency and air flow, the horizontal drain pan should be removed from units in upflow configurations.
- 3- After removing horizontal drain pan, place unit in desired location. Set unit so that it is level. Connect return and supply air plenums as required using sheet metal screws. See figure 12.

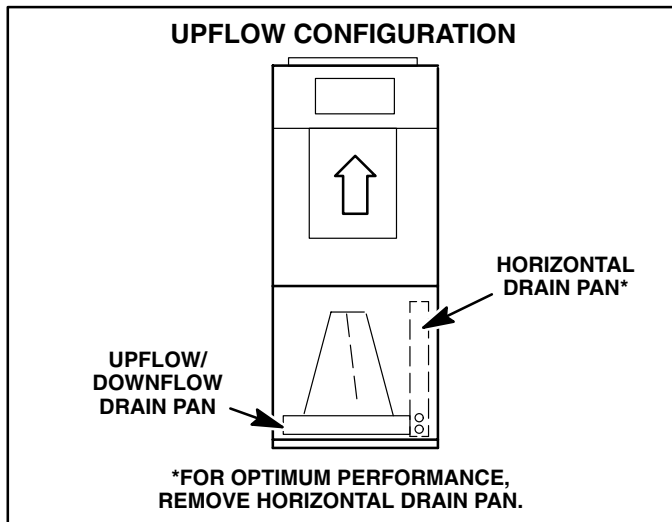


FIGURE 12

C-Downflow Application

NOTE - CB29M and CB30M-21/26 units do not require downflow drip shields.

- 1- Remove drip shields with the foam pads from the top of the unit. The shields are used for downflow applications only and may need to be field fabricated if no longer with unit.
- 2- Remove coil assembly from unit.
- 3- Remove horizontal drain pan. See figure 13.

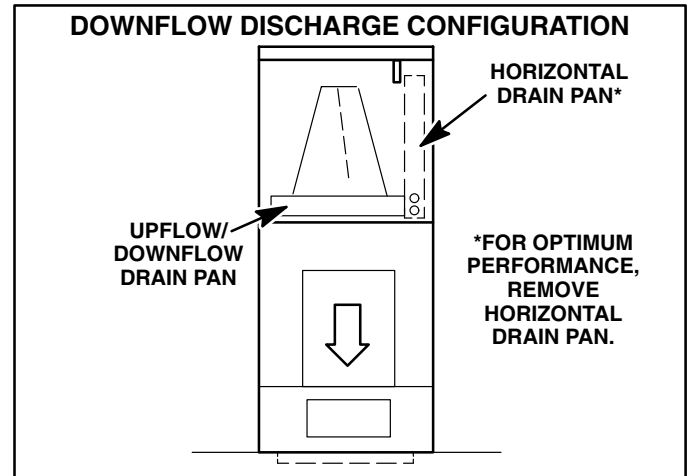


FIGURE 13

- 4- Rotate cabinet 180° from upright. It may be necessary to first remove the blower assembly to lighten the cabinet for lifting.
- 5- Install downflow drip shield firmly in place on inside of coil slab from under drain pan. See figures 14 and 15.
- 6- Replace coil assembly and blower if removed. Replace coil access panel. If horizontal drain pan is not removed, depress tab in cabinet support rail to hold horizontal drain pan in place. See figure 13.

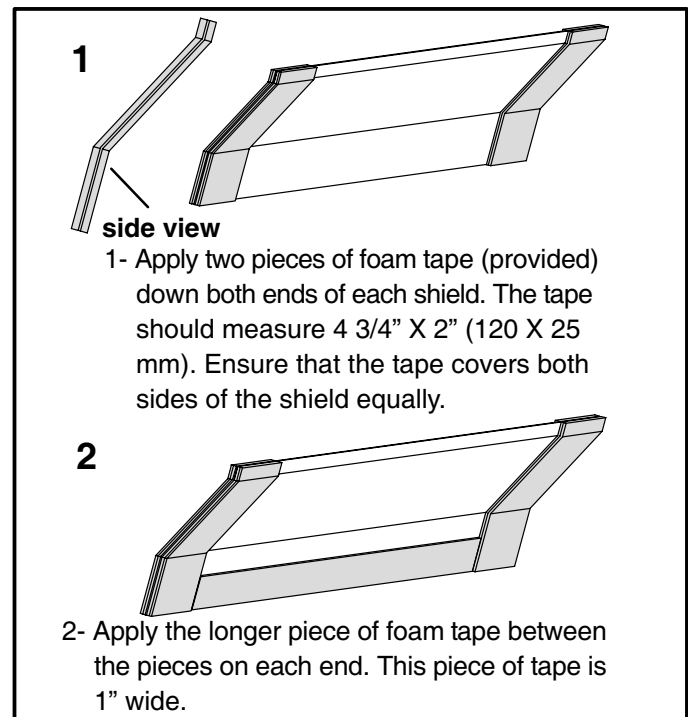


FIGURE 14

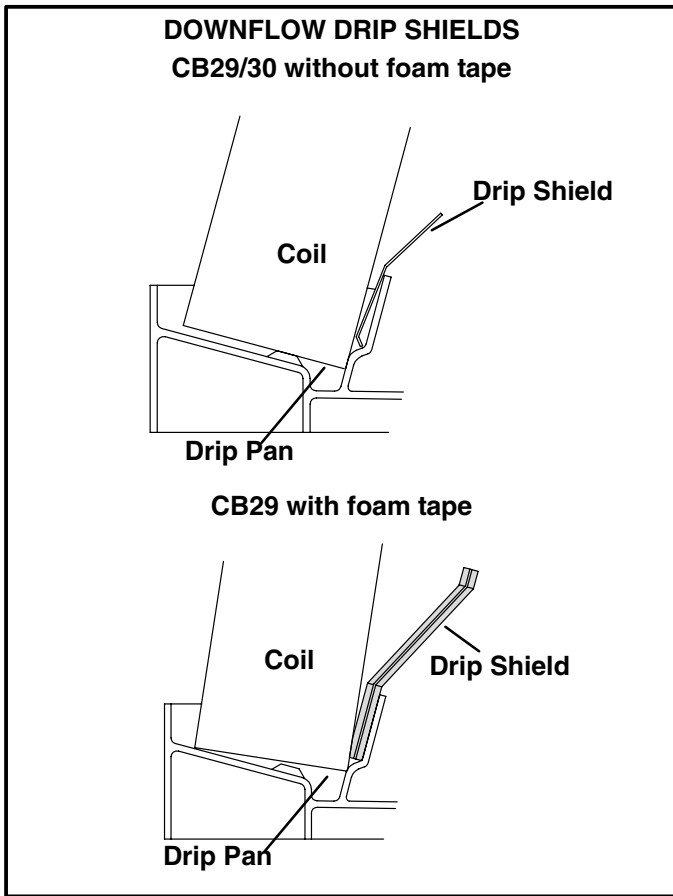


FIGURE 15

- 7- Set unit so that it is level. Connect return and supply air plenums as required using sheet metal screws.

! WARNING

If electric heat section with circuit breakers (ECB29) are applied to downflow CB29M or CB30M unit, the circuit breakers must be rotated 180° to the UP position. See ECB29 installation instructions for more details.

NOTE-For downflow application, metal or class I supply and return air plenums must be used.

For downflow installation on combustible flooring, an additive base must be used. See figure 16.

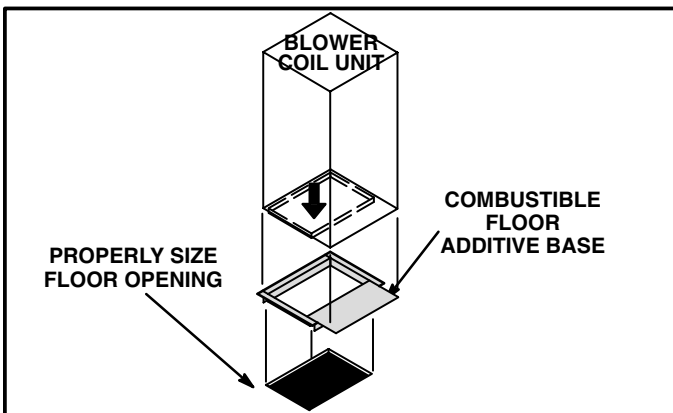


FIGURE 16

Cut an opening appropriately sized for combustible base. Base dimensions are shown in figure 17. After opening has been cut, set the additive base into opening. Connect outlet air plenum to the additive base. Set the unit on the additive base so flanges of the unit drop into the base opening and seal against the insulation strips. Seal around the insulation strips with perma-gum. The unit is now locked in place. Install return air plenum and secure with sheet metal screws.

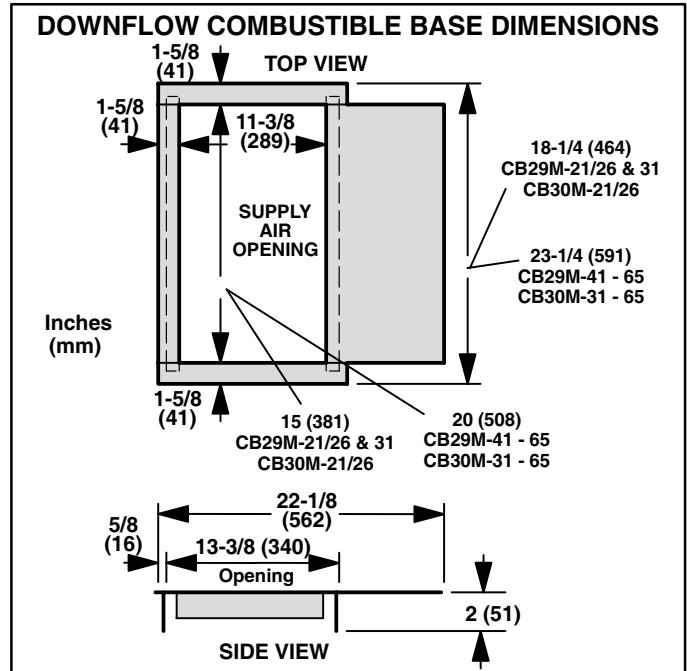


FIGURE 17

D-Horizontal Right-Hand Discharge Application

- 1- Discard drip shields, if applicable. The shields are used for downflow applications only.
- 2- Place blower coil on its right side.
- 3- No further adjustment is necessary. Set unit so it is sloped towards the drain pan (1/4" [6mm]). See figure 18.

NOTE-For horizontal applications, a secondary drain pan is recommended. Refer to local codes.

*NOTE-For horizontal applications in **high humidity areas**, remove the downflow rail closest to the drain pan. To remove rail, remove screw from rail at back of unit and at cabinet support rail. Remove downflow rail then replace screws. Also, seal around the exiting drain pipe, liquid and suction lines to prevent infiltration of humid air.*

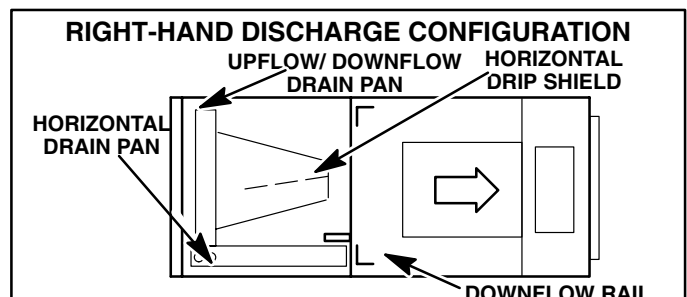


FIGURE 18

- 3- If hanging the unit, it must be supported along the entire length of the cabinet. If using chain or strap, use a piece of angle iron or sheet metal attached to the unit (either above or below) so that the full length of the cabinet is supported. Use securing screws no longer than 1/2" (13mm) to avoid damage to coil or filter. See figure 19. Connect return and supply air plenums as required using sheet metal screws.

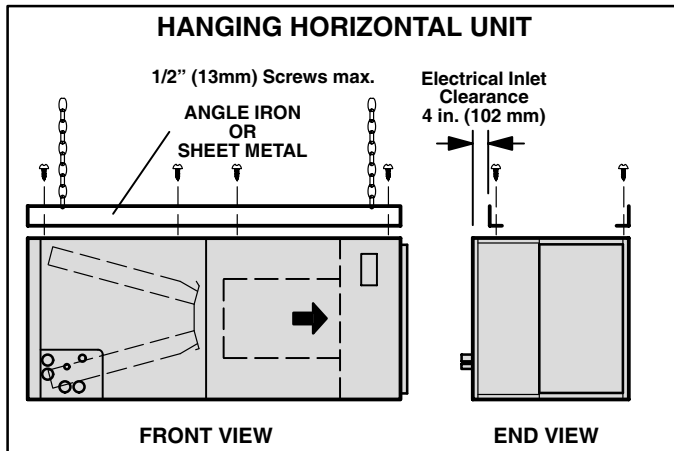


FIGURE 19

⚠ CAUTION

Danger of equipment damage and personal injury. Take care when removing coil assembly from unit installed in right or left-hand applications. Coil may tip into drain pan once clear of cabinet. Support coil when removing.

E-Horizontal Left-Hand Discharge Application

NOTE-For horizontal applications, a secondary drain pan is recommended. Refer to local codes.

- 1- Discard drip shields, if applicable. The shields are used for downflow applications only.
- 2- Pull coil assembly from unit. Pull off the horizontal drain pan.
- 3- Remove drain plugs from back drain holes on horizontal drain pan and re-install them on front holes.
- 4- Rotate drain pan 180° front to back and install it on the opposite side of coil.
- 5- Remove screws from top cap. Remove horizontal drip shield screw located in the center of the back coil end seal. See figure 20.
- 6- Rotate horizontal drip shield 180° front to back.
- 7- Remove plastic plug from left hole on coil front end seal and re-install plug in back hole. Re-install horizontal drip shield screw in front coil end seal. Drip shield should drain downward into horizontal drain pan inside coil.

- 8- Rotate top cap 180° front to back and align with unused screw holes. Holes must align with front and back coil end plates. Note that top cap has a 45° bend on one side and 90° bend on the other. **The 90° bend must be on the same side as the horizontal drain pan.** See figures 20 and 21.

NOTE-Use extreme care when re-installing screws into coil end plate engaging holes. Coil damage could result by misalignment.

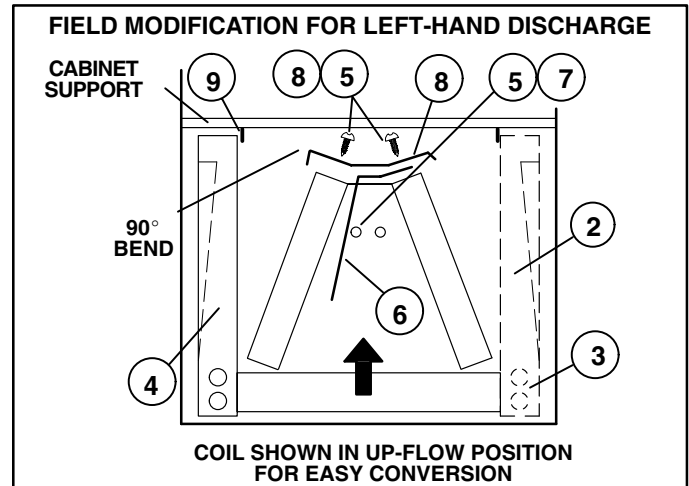


FIGURE 20

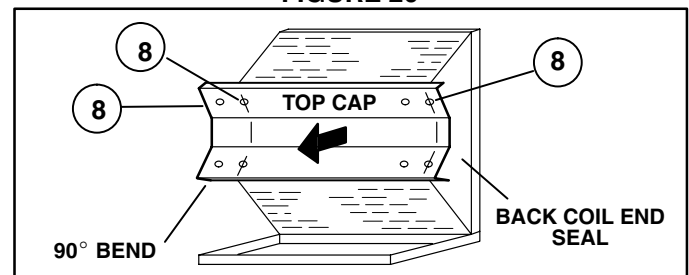


FIGURE 21

- 9- From the upflow position, replace coil assembly. Then flip cabinet 90° to the left and set into place. Replace coil assembly. Secure coil in place by bending down tab on cabinet support rail. See figures 20 and 22.

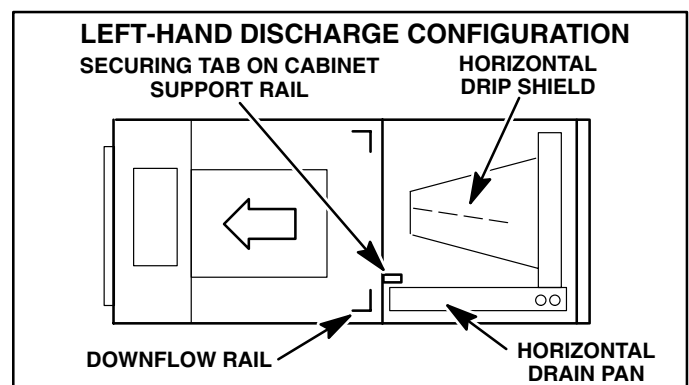


FIGURE 22

*NOTE-For horizontal applications in **high humidity areas**, remove the downflow rail closest to the drain pan. To remove rail, remove screw from rail at back of unit and at cabinet support rail. Remove downflow rail then replace screws. Also, seal around the exiting drain pipe, liquid and suction lines to prevent infiltration of humid air.*

- 11- Flip access door. Knock out the portion of door for the drain pipes and attach to the cabinet with screw provided. Replace access door on the unit.
- 12- Set unit so it is sloped towards the drain pan (1/4" [6mm]). Connect return and supply air plenums as required using sheet metal screws.
- 13- If hanging the unit, it must be supported along the entire length of the cabinet. If using chain or strap, use a piece of angle iron or sheet metal attached to the unit (either above or below) so that the full length of the cabinet is supported. Use securing screws no longer than 1/2" (13mm) to avoid damage to coil or filter. See figure 19. Connect return and supply air plenums as required using sheet metal screws.

F-Condensate Drain

A 5" (127mm) section of PVC pipe is provided with the unit. Cut the pipe in half and use to route the auxiliary and main drains. Connect main condensate drain and route downward to an open drain or sump. Do not connect drain to a closed waste system. Refer to figure 23 for typical condensate trap configuration.

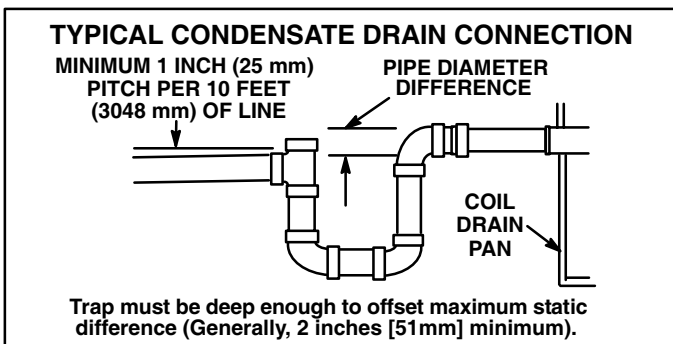


FIGURE 23

It is recommended that the auxiliary drain be connected to a drain line for all units. If auxiliary drain is not connected, it must be plugged with provided cap. **For downflow units, the auxiliary drain MUST be connected and routed to a drain.** See figure 24 for auxiliary and main drain locations.

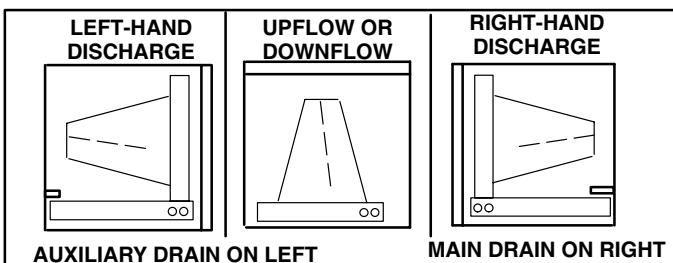


FIGURE 24

The following practices are recommended to ensure condensate removal:

- 1- Drain piping should not be smaller than the drain connections at drain pan.
- 2- A trap must be installed in the main drain line.
- 3- The trap must be deep enough to offset the difference in static pressure between drain pan and atmosphere. Generally, two inches is satisfactory for medium static applications.
- 4- Horizontal runs must be sloped 1" (25mm) per 10 feet (3.1m) of drain line to offset friction.
- 5- An open vent in drain line will sometimes be required due to line length, friction and static pressure.
- 6- Drains should be constructed in a manner to facilitate future cleaning and not to interfere with filter access. See figure 23.
- 7- Auxiliary drain should run to an area where homeowner will notice it draining. Refer to local codes.

V-START-UP - OPERATION

A-Preliminary and Seasonal Checks

- 1- Make sure the unit is installed in accordance with the installation instructions.
- 2- Inspect electrical wiring, both field and factory installed for loose connections. Tighten as required.
- 3- Check voltage at disconnect switch. Voltage must be within range listed on the nameplate. If not, consult the power company and have voltage condition corrected before starting unit.
- 4- Check to ensure that refrigerant lines are in good condition and pipe insulation is intact.
- 5- Inspect condition of condensate drain pan and piping assembly. Disassemble and clean seasonally.

B-Cooling Start-Up

NOTE-The following is a generalized procedure and does not apply to all thermostat control systems. Electronic thermostat control systems may operate differently.

- 1- Set fan switch to AUTO or ON and move the system selection switch to COOL. Adjust the thermostat to a setting far enough below room temperature to bring on the compressor. Compressor will start and cycle on demand from the thermostat.
- 2- The refrigerant circuit is charged with R-22 refrigerant. See condensing unit rating plate for correct charge amount.
- 3- Refer to the correct condensing unit service manual for more information.

C-Heating Start-Up

- 1- Set the fan switch to AUTO or ON and move the system selection switch to HEAT. Adjust the thermostat setting above room temperature.
- 2- The indoor blower immediately starts and the electric heat will stage on based on sequencer timing.

D-Safety or Emergency Shutdown

Turn off unit power at circuit breaker.

E-Extended Period Shutdown

Turn off thermostat or set to "UNOCCUPIED" mode. Turn off power to unit. All access panels and covers must be in place and secured. The condensate assembly should be clean and dry for extended period shutdown.

VI-TYPICAL OPERATING CHARACTERISTICS

A-Blower Operation and Adjustment

NOTE- The following is a generalized procedure and does not apply to all thermostat controls.

- 1- Blower operation is dependent on thermostat control system.
- 2- Generally, blower operation is set at thermostat sub-base fan switch. With fan switch in ON position, blower operates continuously. With fan switch in AUTO position, blower cycles with demand.
- 3- In all cases, blower and entire unit will be off when the system switch is in OFF position.

B-External Static Pressure

- 1- Measure tap locations as shown in figure 25.

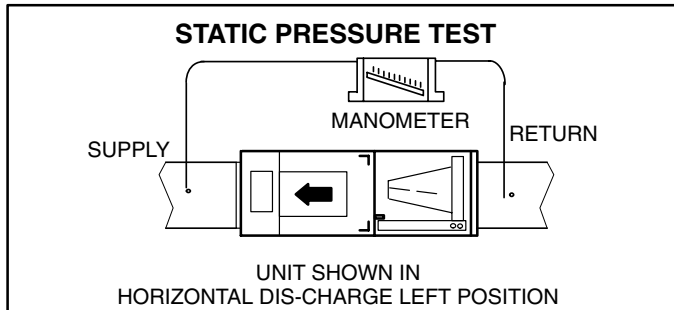


FIGURE 25

- 2- Punch a 1/4" (6mm) diameter hole in supply and return air plenums. Insert manometer hose flush with inside edge of hole or insulation. Seal around the hose with permagum. Connect the zero end of the manometer to the discharge (supply) side of the system. On ducted systems, connect the other end of manometer to the return duct as above. For systems with non-ducted returns, leave the other end of the manometer open to the atmosphere.
- 3- With only the blower motor running and the evaporator coil dry, observe the manometer reading. Adjust blower motor speed to deliver the air desired according to the job requirements.
- 4- External static pressure drop must not exceed 0.5" W.C. (1.2 kPa)
- 5- Seal around the hole when the check is complete.

C-Blower Speed Taps

CB28UH

The CB28UH is not equipped with a motor tap harness like the CB29/30M. Blower speed selection is accomplished by changing the individual tap at the harness connector at the blower motor. Refer to unit wiring diagram and the blower performance data tables (table of contents) at the front of this manual.

For the minimum allowable speed for the CB28UH series units with electric heat, refer to ECB29 installation instructions.

CB29M & CB30M

Blower speed tap selection for the CB29M and CB30M units is accomplished by changing the taps at the blower motor harness connector. Disconnect harness connector from motor to expose speed selectors. Blower speed selections are listed on the wiring diagrams. Refer to the ECB29 installation instructions for minimum allowable blower speed, when using electric heat. CB28UH UNITS

To Change Blower Speed

- 1- Turn off electric power to furnace.
- 2- Remove blower access door.
- 3- Disconnect blower motor harness from motor.
- 4- Select desired speeds for heating and cooling. (Black = cooling high speed, Orange = common, Yellow = electric heat only).
- 5- Depress harness connector tab to release wire terminal. Select connector location for new speed (refer to unit wiring diagram). Insert wire terminal until it is securely in place. See figure 26.
- 6- Replace harness connector to motor.

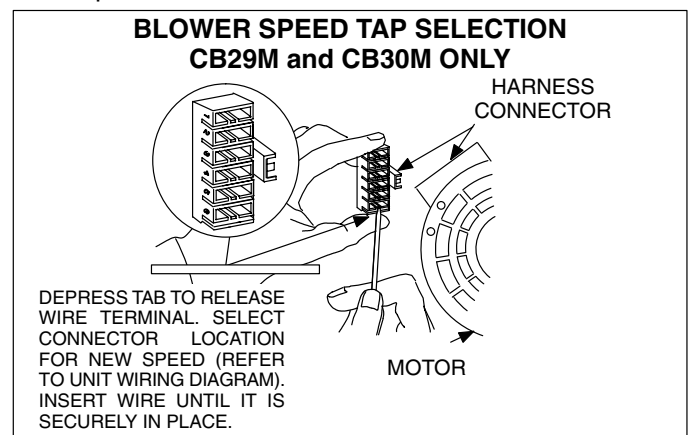


FIGURE 26

VII-MAINTENANCE

WARNING

Disconnect power before performing any maintenance.

At the beginning of each heating/cooling season, the system should be checked as follows:

A-Filters

NOTE- Filter access panel must be in place during unit operation. Excessive warm air entering the unit may result in water blow-off problems.

TABLE 17

CB29M and CB30M FILTER SIZES	
Unit	Filter Size
CB28UH-18/24-1, CB29M / CB30M-21/26-1, -2 CB28UH-030-1, CB29M-31-1, -2	15" X 20" (381mm X 508mm)
CB28UH-036-1, -042-1, CB29M-41-1,-2 CB29M-46-1,-2 CB29M-51-1, CB29-65-1 CB30M-31-1,-2, -41-1, -46-1	20" X 20" (508mm X 508mm)
CB30M-51-1, -65-2	20" X 24" (508mm X 610mm)
CB30M-51-1, -65-2	20" X 24" (508mm X 610mm)
CB28UH-048-1, -060-1 CB29M-51-2, -65-2 CB30M41-2, -46-2	20" X 22" (508mm X 559mm)

To remove filter, loosen the thumbscrews holding the filter panel in place. Slide filter out of the guides on either side of cabinet, insert new filter and replace panel. Some models come with a spacer so standard size filters can be used. Filters should be inspected monthly and must be replaced when dirty to ensure proper blower coil operation. See table 17 for replacement filter sizes or see the sticker located on the filter access door specifying the size of the standard throw-away filter which is used with the unit.

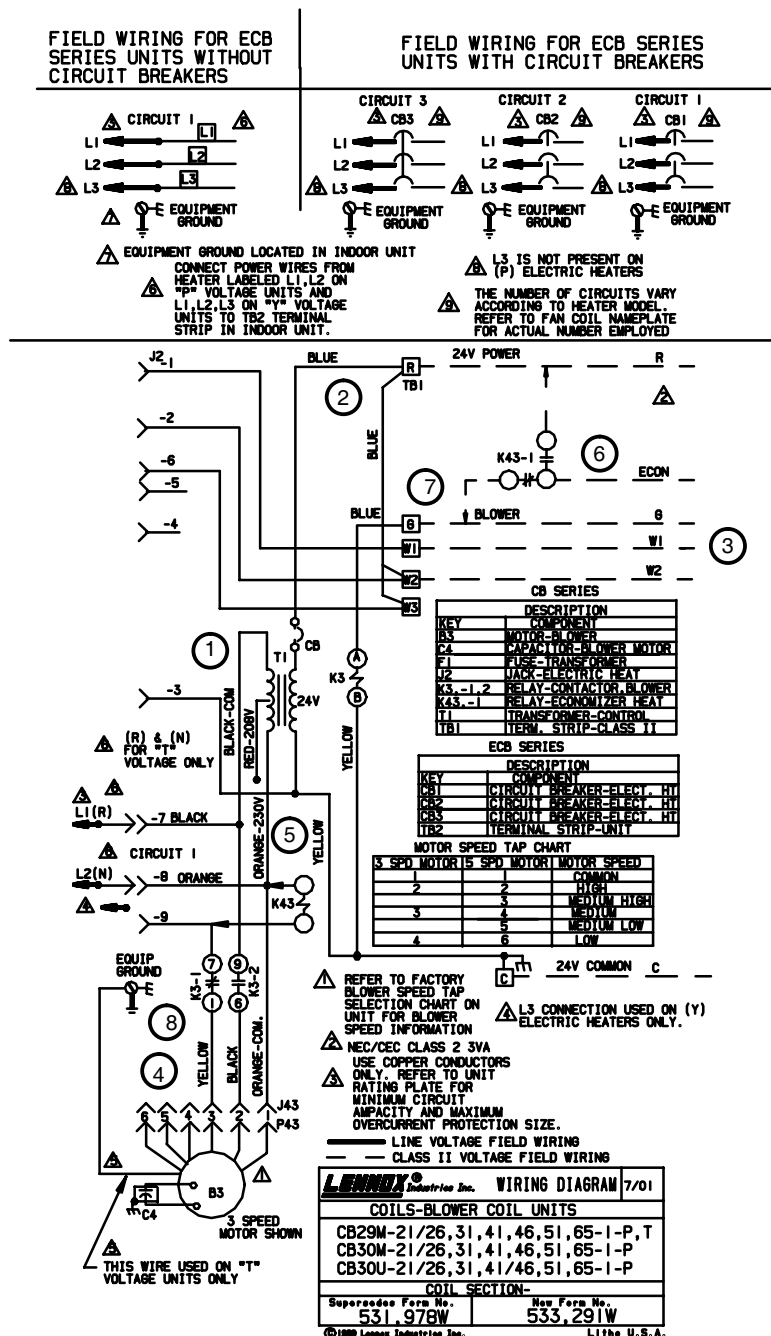
B-Supply Air Blower

- 1- Check and clean blower wheel.
- 2- Motors are prelubricated for extended life; no further lubrication is required.

C-Electrical

- 1- Check all wiring for loose connections.
- 2- Check circuit breaker located in unit control box.
- 3- Check for correct voltage at unit (unit operating).
- 4- Check amp-draw on blower motor.
- 5- Check to see that heat (if applicable) is operating.

VIII-WIRING DIAGRAMS AND SEQUENCE OF OPERATIONS



A-CB29M & CB30M-1 Units 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

- 1- Line voltage is routed to transformer T1 and blower motor B3.
- 2- T1 supplies 24VAC to terminal strip TB1, which supplies 24VAC to the indoor thermostat and electric heat, if used.
- 4- Blower motor B3 is energized on heating speed after K32-1 closes (see electric heat).
- 5- Economizer relay K43 (if used) is energized after K32-1 closes (see electric heat section).
- 6- K43-1 closes energizing the economizer with 24VAC.

HEATING

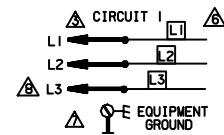
- 3- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 (covered in the electric heat section).

COOLING

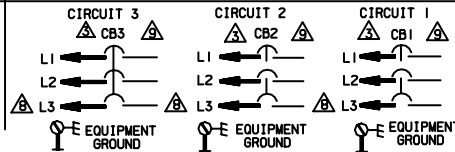
- 7- When there is a call for cooling, G of the thermostat energizes blower relay K3 and the economizer, if used.
- 8- K3-2 closes energizing blower motor B3 on cooling speed.

FIELD WIRING FOR ECB SERIES UNITS WITHOUT CIRCUIT BREAKERS

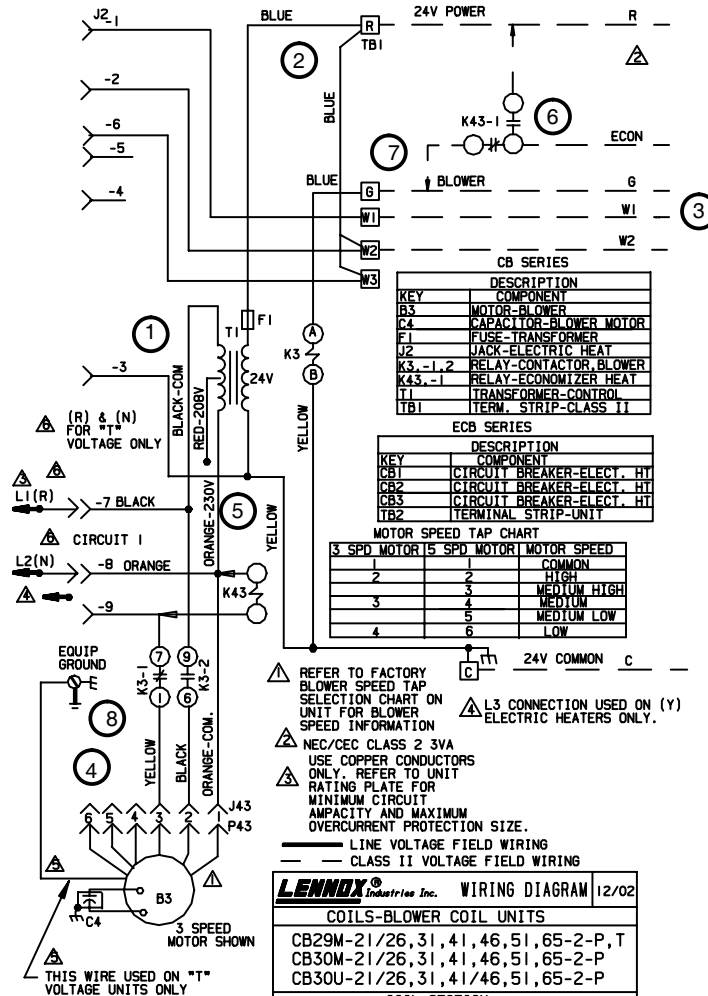
FIELD WIRING FOR ECB SERIES UNITS WITH CIRCUIT BREAKERS



EQUIPMENT GROUND LOCATED IN INDOOR UNIT
CONNECT POWER WIRES FROM HEATER LABELED L1, L2 ON "P" VOLTAGE UNITS AND L1, L2, L3 ON "Y" VOLTAGE UNITS TO TB2 TERMINAL STRIP IN INDOOR UNIT.



L3 IS NOT PRESENT ON (P) ELECTRIC HEATERS
THE NUMBER OF CIRCUITS VARY ACCORDING TO HEATER MODEL. REFER TO FAN COIL NAMEPLATE FOR ACTUAL NUMBER EMPLOYED



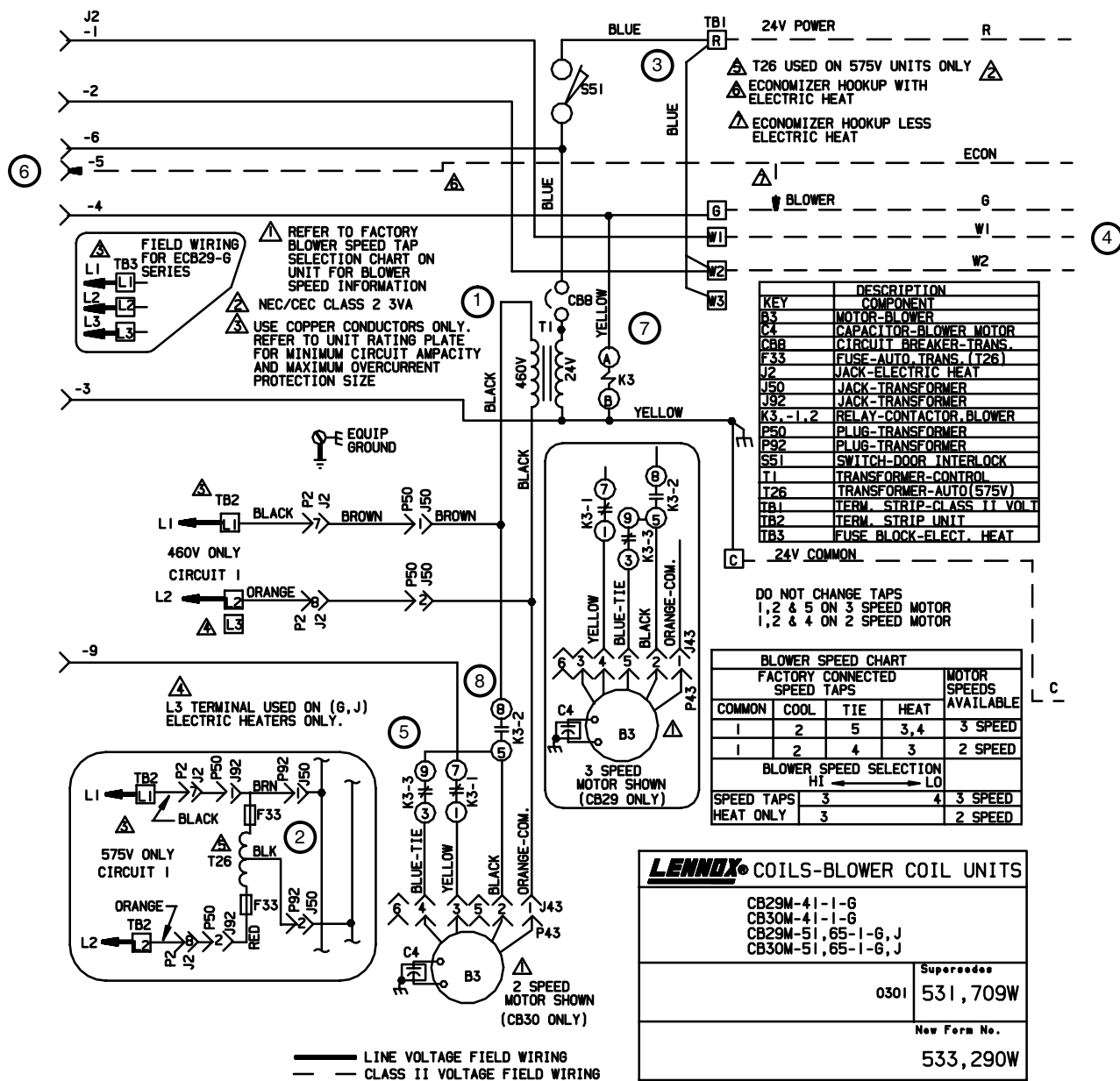
LENNOX Industries Inc. WIRING DIAGRAM 112/02	
COILS-BLOWER COIL UNITS	
CB29M-21/26, 31, 41, 46, 51, 65-2-P, T	
CB30M-21/26, 31, 41, 46, 51, 65-2-P, T	
CB30U-21/26, 31, 41/46, 51, 65-2-P	
COIL SECTION-	
Supersedes Form No. 533, 291W	New Form No. 534, 302W
©1999 Lennox Industries Inc. Litho U.S.A.	

B-CB29M & CB30M-2 Units 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

- Line voltage is routed to transformer T1 and blower motor B3.
- T1 supplies 24VAC to terminal strip TB1, which supplies 24VAC to the indoor thermostat and electric heat, if used.
- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 (covered in the electric heat section).
- Blower motor B3 is energized on heating speed after K32-1 closes (see electric heat).
- Economizer relay K43 (if used) is energized after K32-1 closes (see electric heat section).
- K43-1 closes energizing the economizer with 24VAC.
- When there is a call for cooling, G of the thermostat energizes blower relay K3 and the economizer, if used.
- K3-2 closes energizing blower motor B3 on cooling speed.

HEATING

COOLING



C-CB29M - 460 and 575V THREE PHASE - SEQUENCE OF OPERATION

- 1- In 460 volt units, line voltage is routed to transformer T1 and blower motor B3.
- 2- In 575 volt units, line voltage is routed to transformer T26. Transformer T26 supplies 460VAC to transformer T1 and blower motor B3.
- 3- T1 supplies 24VAC through door interlock switch S51 to terminal strip TB1, which supplies 24VAC to the indoor thermostat and electric heat, if used.

HEATING

- 4- When there is a call for heat, W1 of the thermostat energizes the electric heat blower relay K36 (covered in the

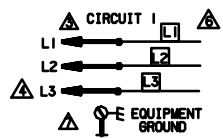
electric heat section).

- 5- Blower motor B3 is energized on heating speed after K36-3 closes (see electric heat).
- 6- The economizer, if used, is energized after K36-2 closes (see electric heat section).

COOLING

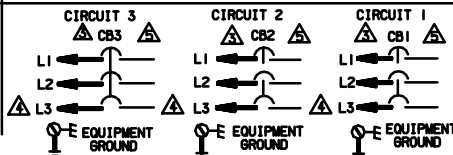
- 7- When there is a call for cooling, G of the thermostat energizes blower relay K3 and the economizer, if used. See electric heat for economizer.
- 8- K3-2 closes energizing blower motor B3 on cooling speed.

FIELD WIRING FOR ECB SERIES UNITS WITHOUT CIRCUIT BREAKERS

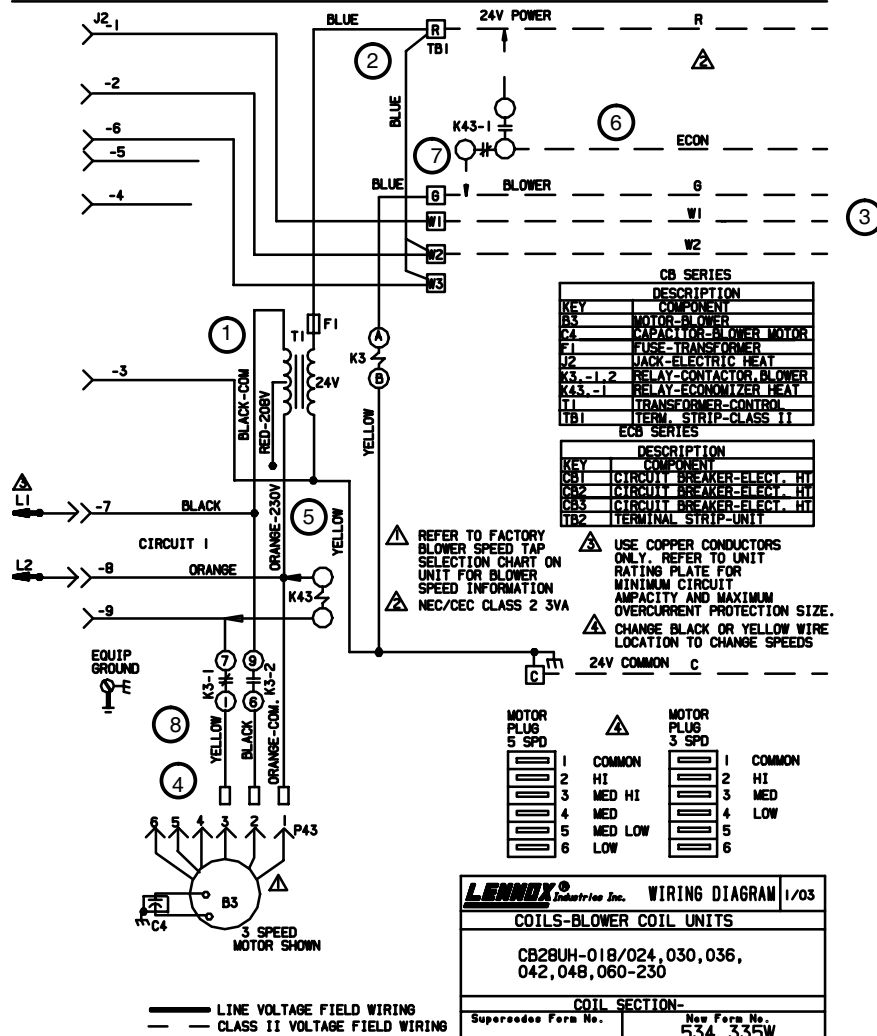


- ⚠ L3 IS NOT PRESENT ON (P) ELECTRIC HEATERS
- ⚠ THE NUMBER OF CIRCUITS VARY ACCORDING TO HEATER MODEL. REFER TO FAN COIL NAMEPLATE FOR ACTUAL NUMBER EMPLOYED

FIELD WIRING FOR ECB SERIES UNITS WITH CIRCUIT BREAKERS



- ⚠ EQUIPMENT GROUND LOCATED IN INDOOR UNIT
- ⚠ CONNECT POWER WIRES FROM HEATER LABELED L1, L2 ON "P" VOLTAGE UNITS AND L1, L2, L3 ON "Y" VOLTAGE UNITS TO TB2 TERMINAL STRIP IN INDOOR UNIT.

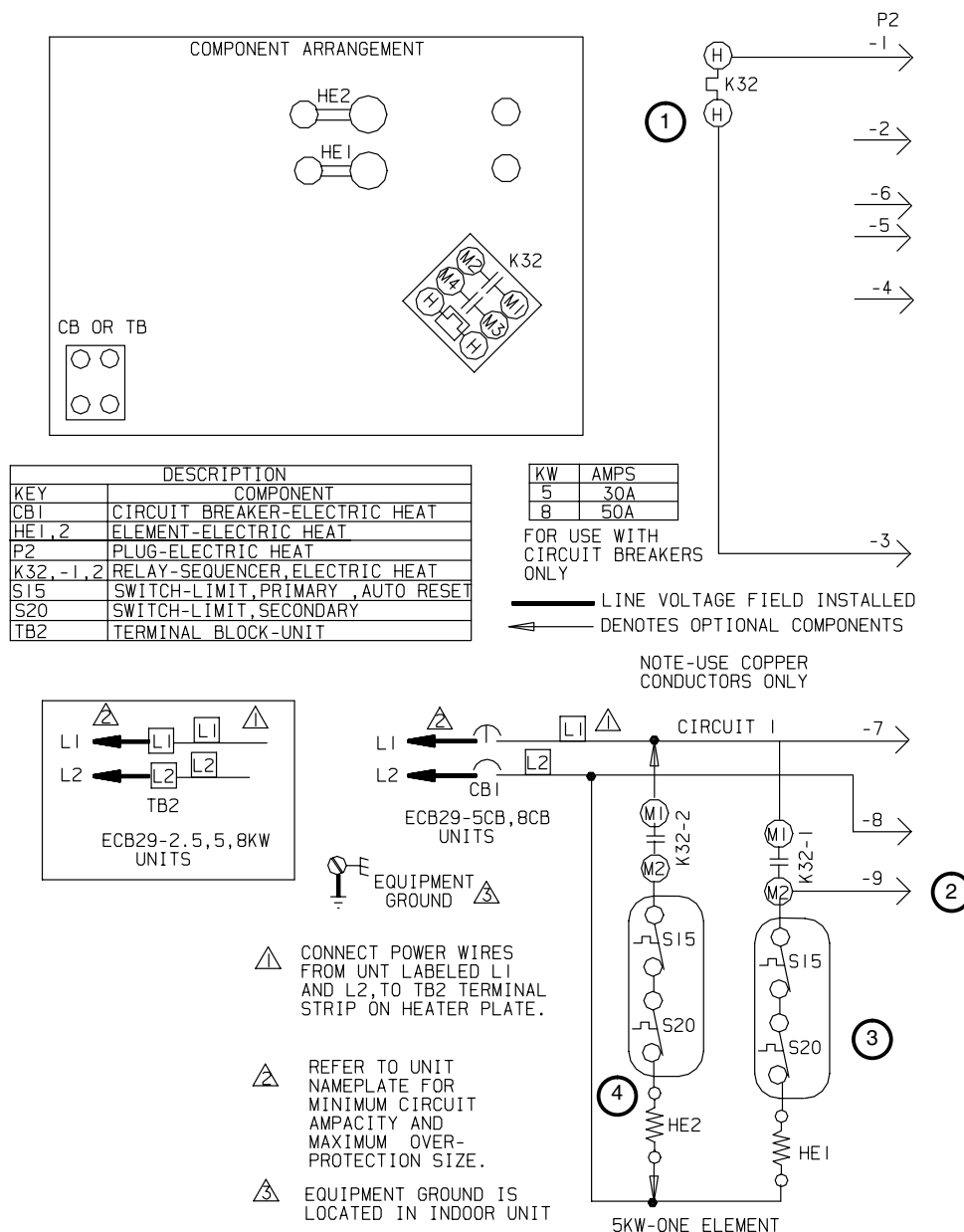


D-CB28UH 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

- Line voltage is routed to transformer T1 and blower motor B3.
- T1 supplies 24VAC to terminal strip TB1, which supplies 24VAC to the indoor thermostat and electric heat, if used.
- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 (covered in the electric heat section).
- Blower motor B3 is energized on heating speed after K32-1 closes (see electric heat).
- Economizer relay K43 (if used) is energized after K32-1 closes (see electric heat section).
- K43-1 closes energizing the economizer with 24VAC.
- When there is a call for cooling, G of the thermostat energizes blower relay K3 and the economizer, if used.
- K3-2 closes energizing blower motor B3 on cooling speed.

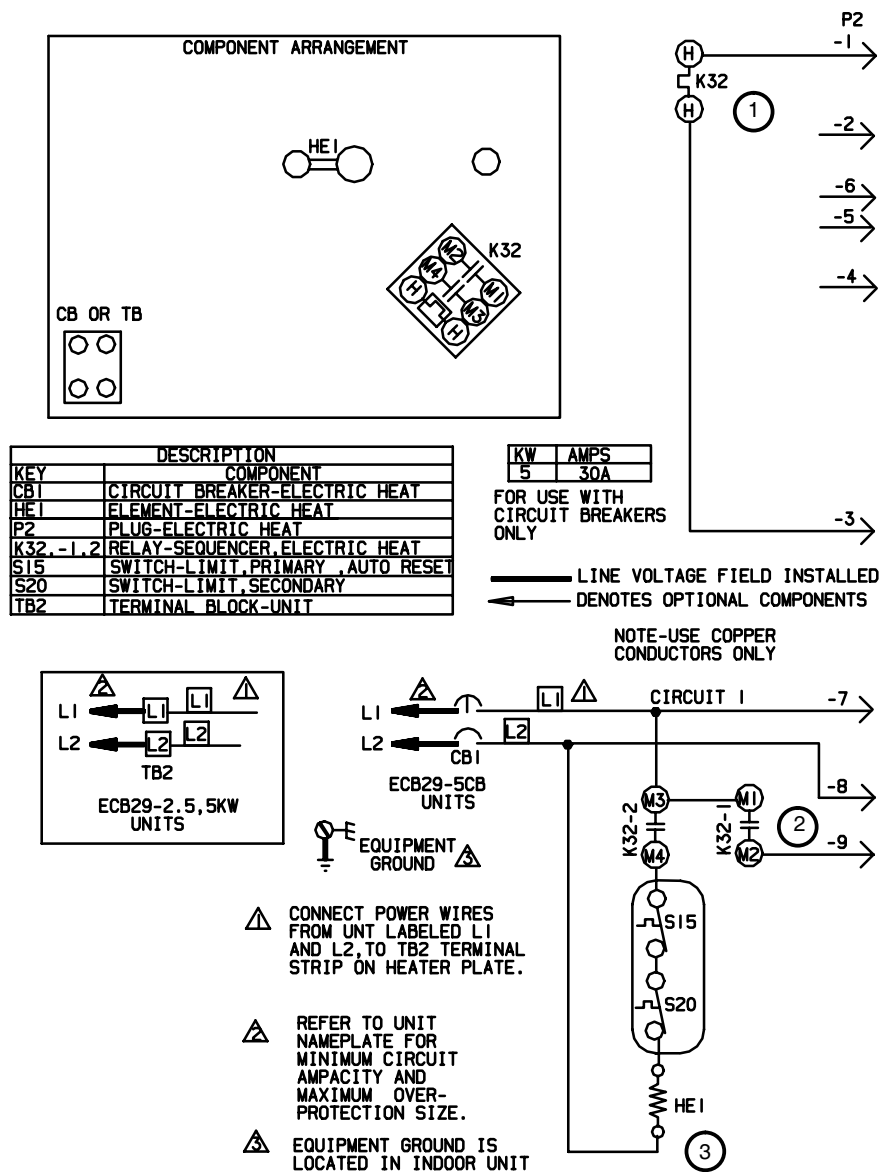
HEATING

COOLING



E-ECB29-2.5, -5, -5CB, -8, -8CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

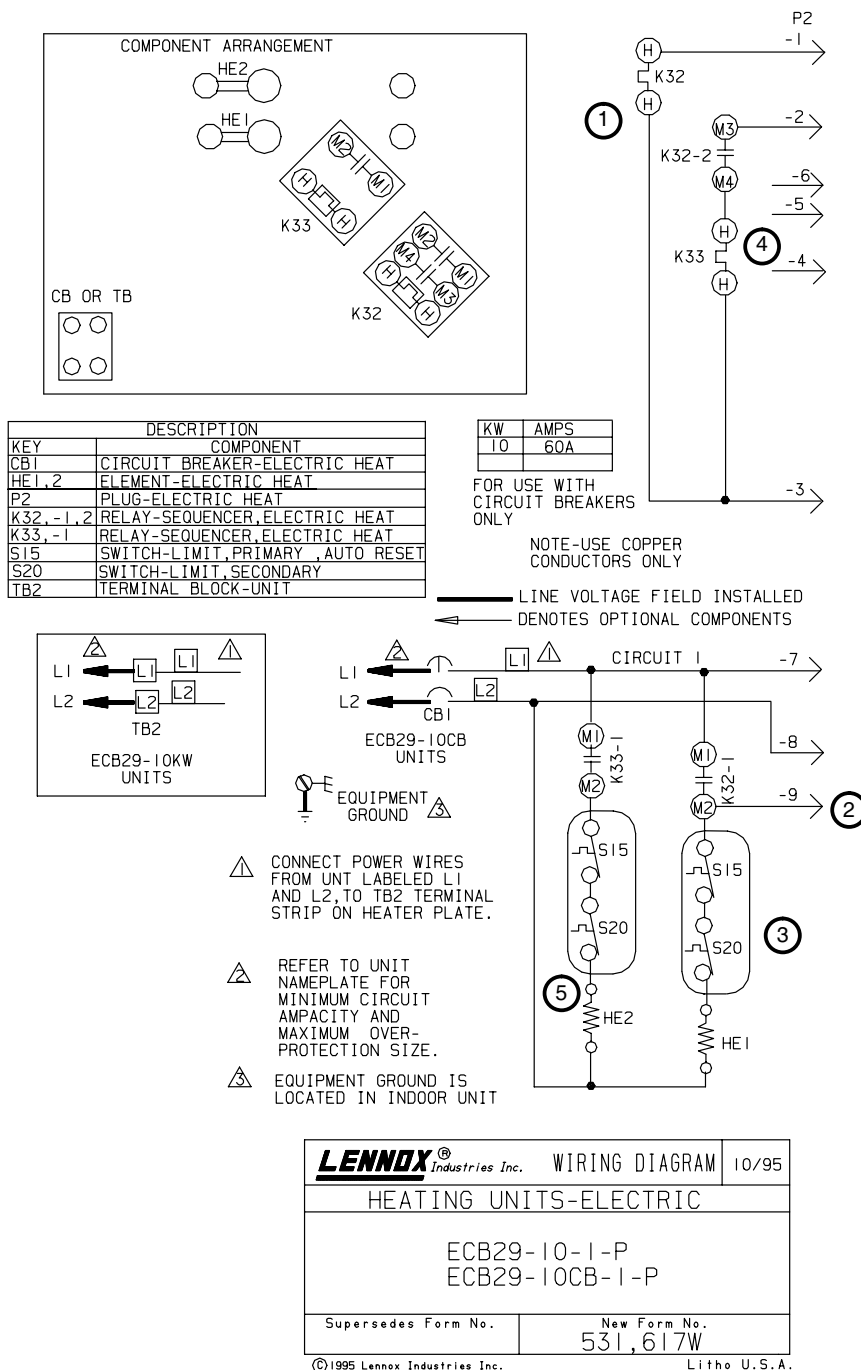
- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 with 24VAC.
- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- Assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.
- When K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized.



LENNOX[®] Industries Inc.		WIRING DIAGRAM	5/97
HEATING UNITS-ELECTRIC			
ECB29-2.5,5-2-P ECB29-5CB-2-P			
Supersedes Form No.	New Form No. 532,526W		
©1997 Lennox Industries Inc.		Litho U.S.A.	

F-ECB29-2.5, -5, -5CB, 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-2 closes, assuming N.C. primary (S15) and the secondary (S20) limit switches are closed, electric heat element HE1 is energized.



G-ECB29-10, -10CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

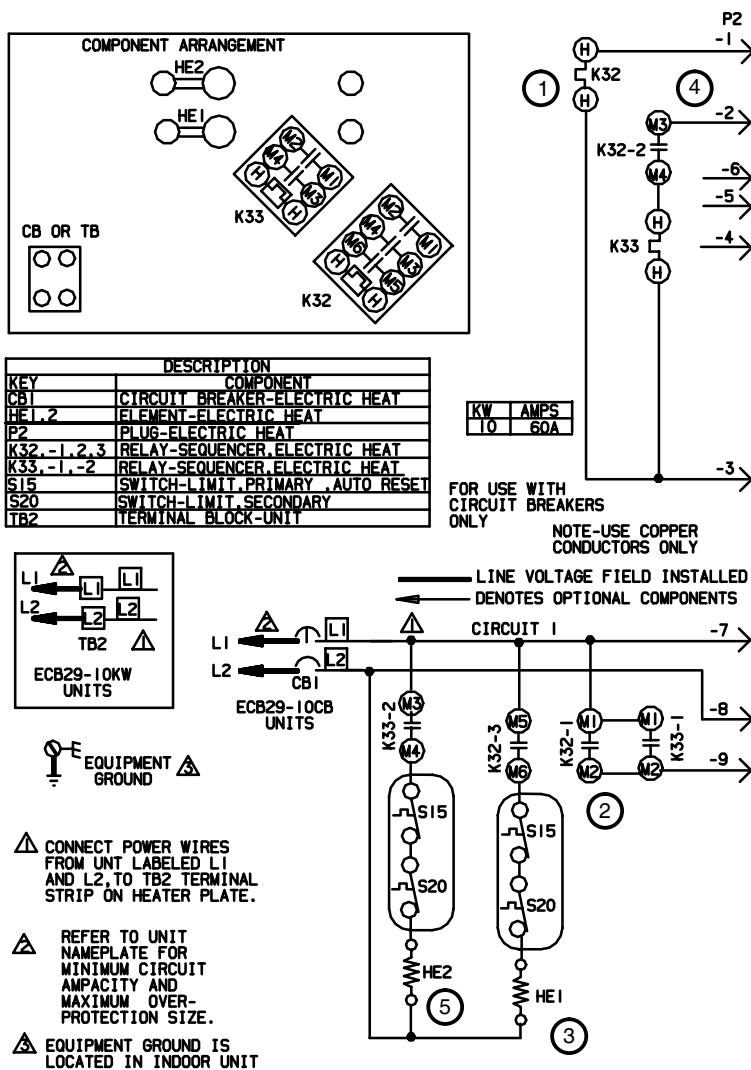
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- Assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 4- When K32-2 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relay K33 with 24VAC.
- 5- When K33-1 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized.



LENNOX Industries Inc.		WIRING DIAGRAM	5/97
HEATING UNITS-ELECTRIC			
ECB29-10-2-P ECB29-10CB-2-P			
Supersedes Form No.	New Form No.		
	532,527W		
©1997 Lennox Industries Inc.		Litho U.S.A.	

H-ECB29-10, -10CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

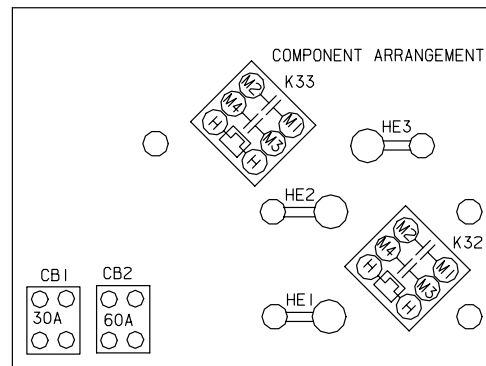
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- K32-3 closes and assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.

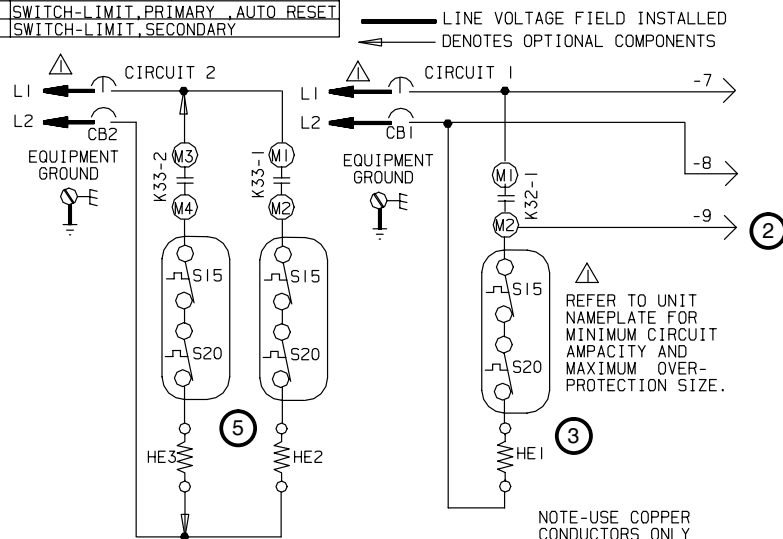
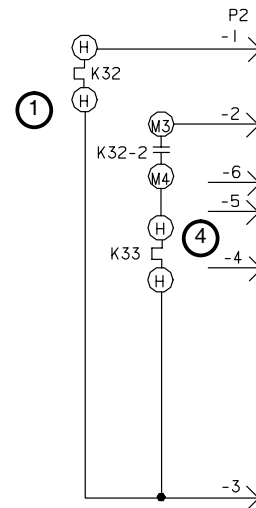
SECOND STAGE HEAT

(remove jumper between W2 and R)

- 4- When K32-2 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relay K33 with 24VAC.
- 5- When K33-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized. K33-1 closes until second stage heat demand is satisfied.



KEY	COMPONENT
CB1	CIRCUIT BREAKER-ELECTRIC HEAT
CB2	CIRCUIT-BREAKER-ELECTRIC HEAT
HE1,2	ELEMENT-ELECTRIC HEAT
HE3,4	ELEMENT-ELECTRIC HEAT
P2	PLUG-ELECTRIC HEAT
K32,-1,2	RELAY-SEQUENCER,ELECTRIC HEAT
K33,-1,2	RELAY-SEQUENCER,ELECTRIC HEAT
S15	SWITCH-LIMIT,PRIMARY,AUTO RESET
S20	SWITCH-LIMIT,SECONDARY



LENNOX [®] Industries Inc.	WIRING DIAGRAM	10/95
HEATING UNITS-ELECTRIC		
ECB29-12.5CB, 15CB-1-P		
Supersedes Form No.	New Form No.	
	531,614W	
©1995 Lennox Industries Inc.	Litho U.S.A.	

I-ECB29-12.5CB, -15CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

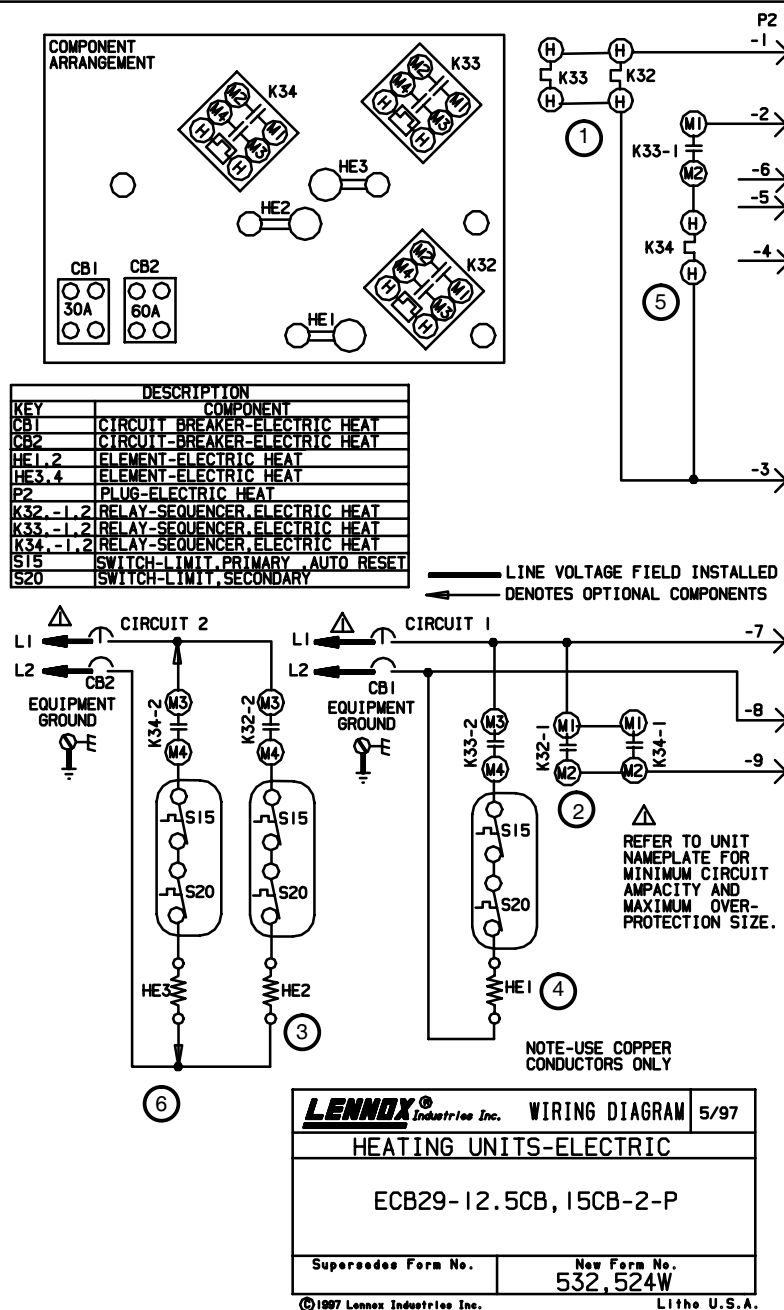
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K32 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- Assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 4- When K32-2 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relay K33 with 24VAC.
- 5- When K33-1 and K33-2 close, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE2 and HE3 are energized.



J-ECB29-12.5CB, -15CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

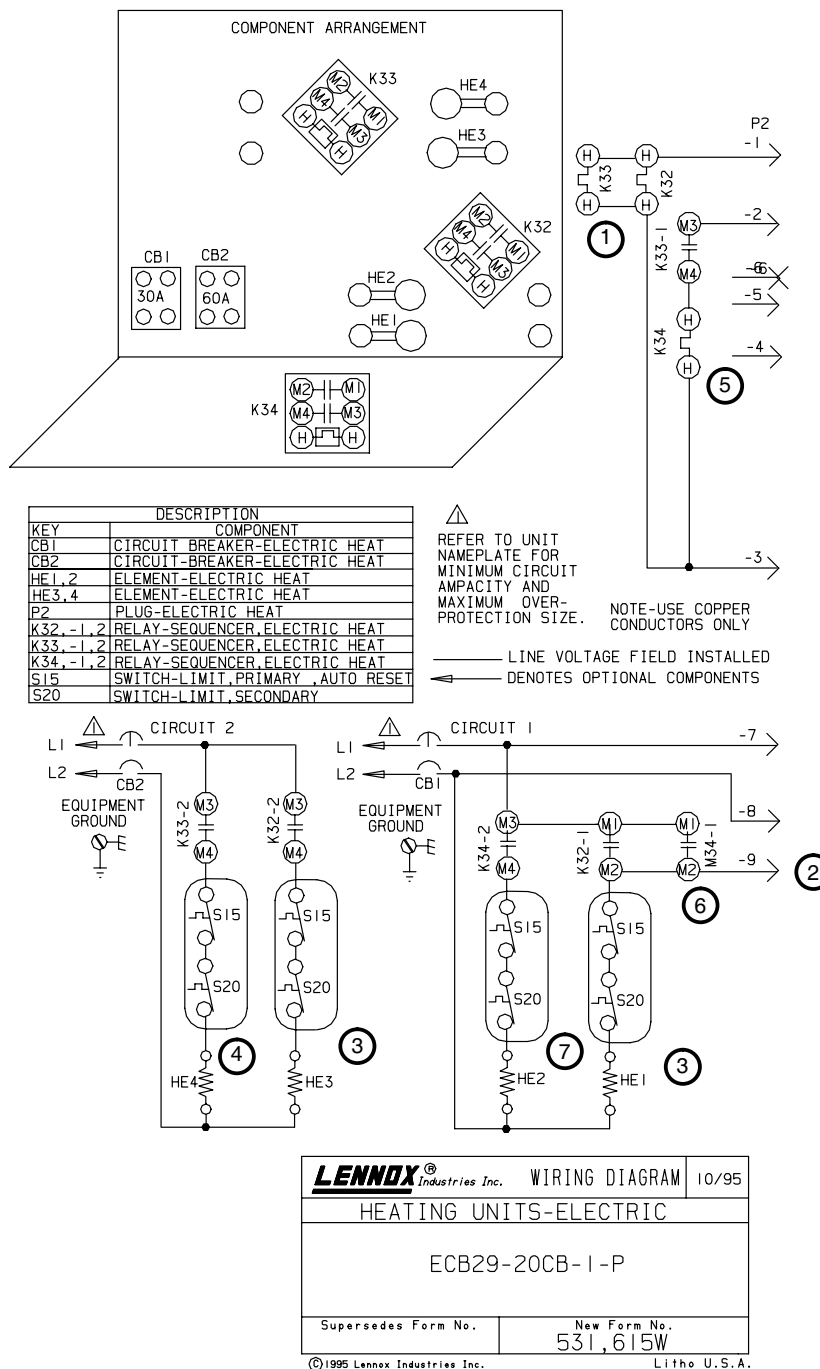
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes electric heat relays K32 and K33 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 4- When K33-1 closes, the unit is ready for a second stage heat demand. When K33-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.
- 5- W2 of the thermostat sends a second stage heat demand, energizing electric heat relay K34 with 24VAC.
- 6- When K34-1 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, heating element HE3 is energized. K34-1 closes until second stage demand is satisfied.



K-ECB29-20CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

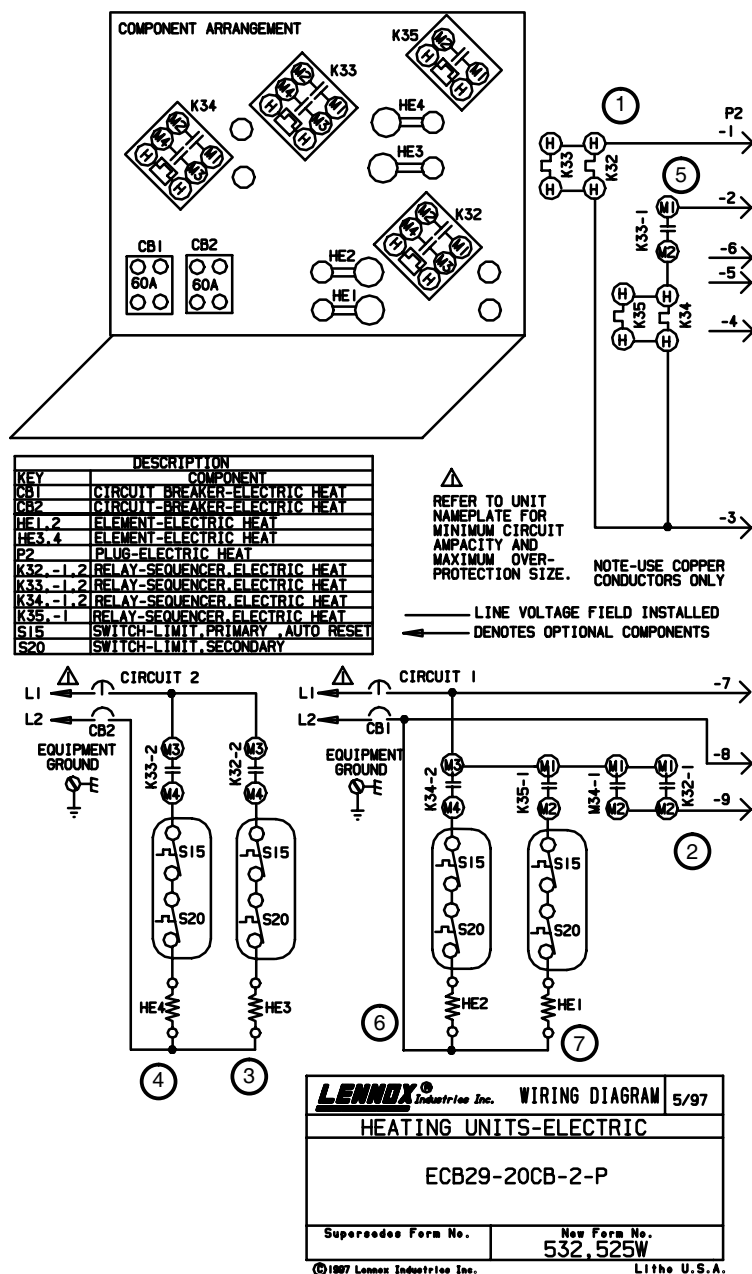
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32 and K33 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-1 and K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE1 and HE3 are energized.
- 4- When K33-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE4 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 5- When K33-1 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relay K34 with 24VAC.
- 6- When K34-1 closes, the blower (if not energized) is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 7- When K34-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized.



L-ECB29-20CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

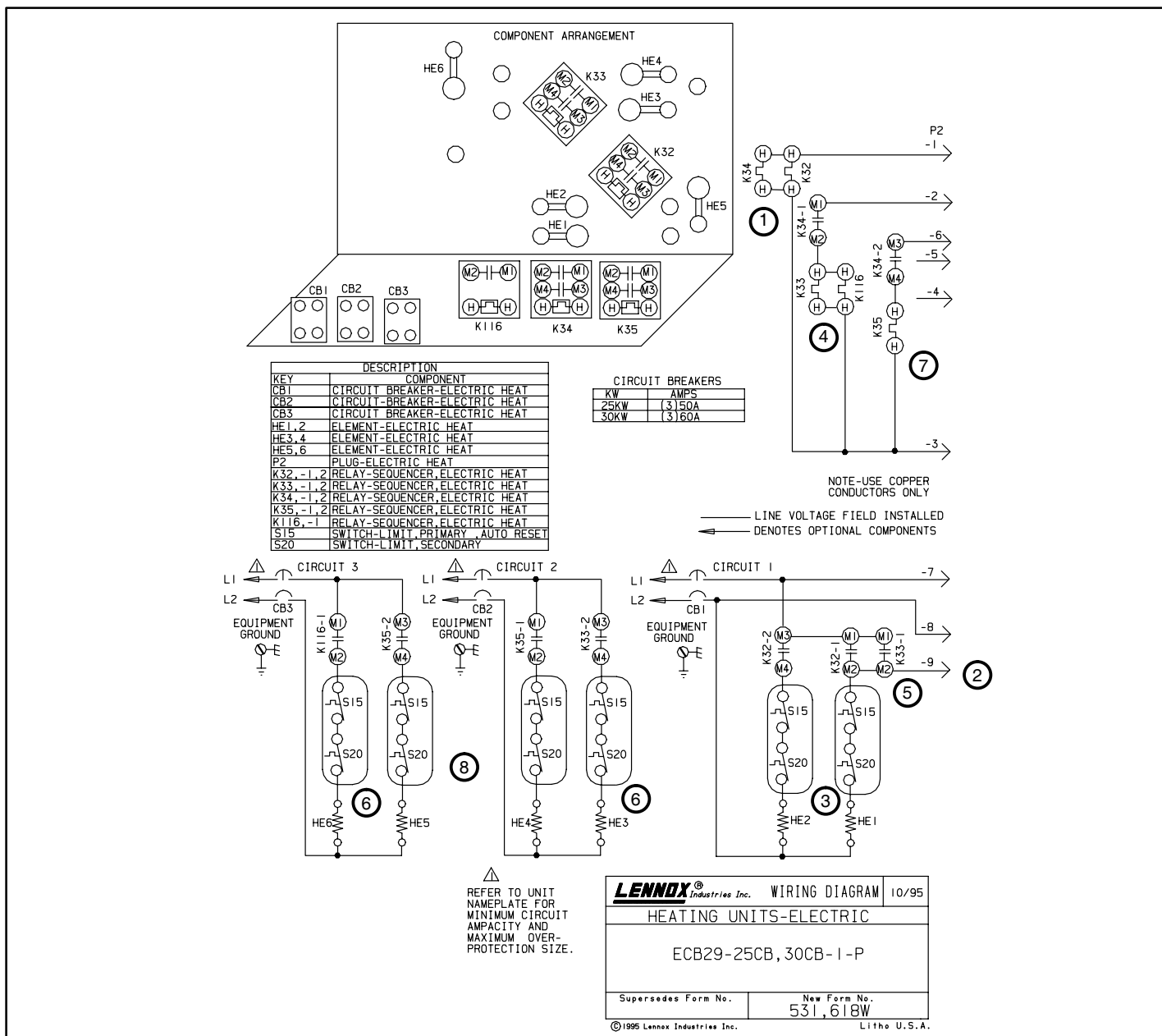
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes electric heat relays K32 and K33 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE3 is energized.
- 4- When K33-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE4 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 5- When K33-1 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relays K34 and K35 with 24VAC.
- 6- When K34-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, heating element HE2 is energized. K34-1 closes until second stage heat demand is satisfied.
- 7- When K35-1 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.



M-ECB29-25CB, -30CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32 and K34 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-1 and K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE1 and HE2 are energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

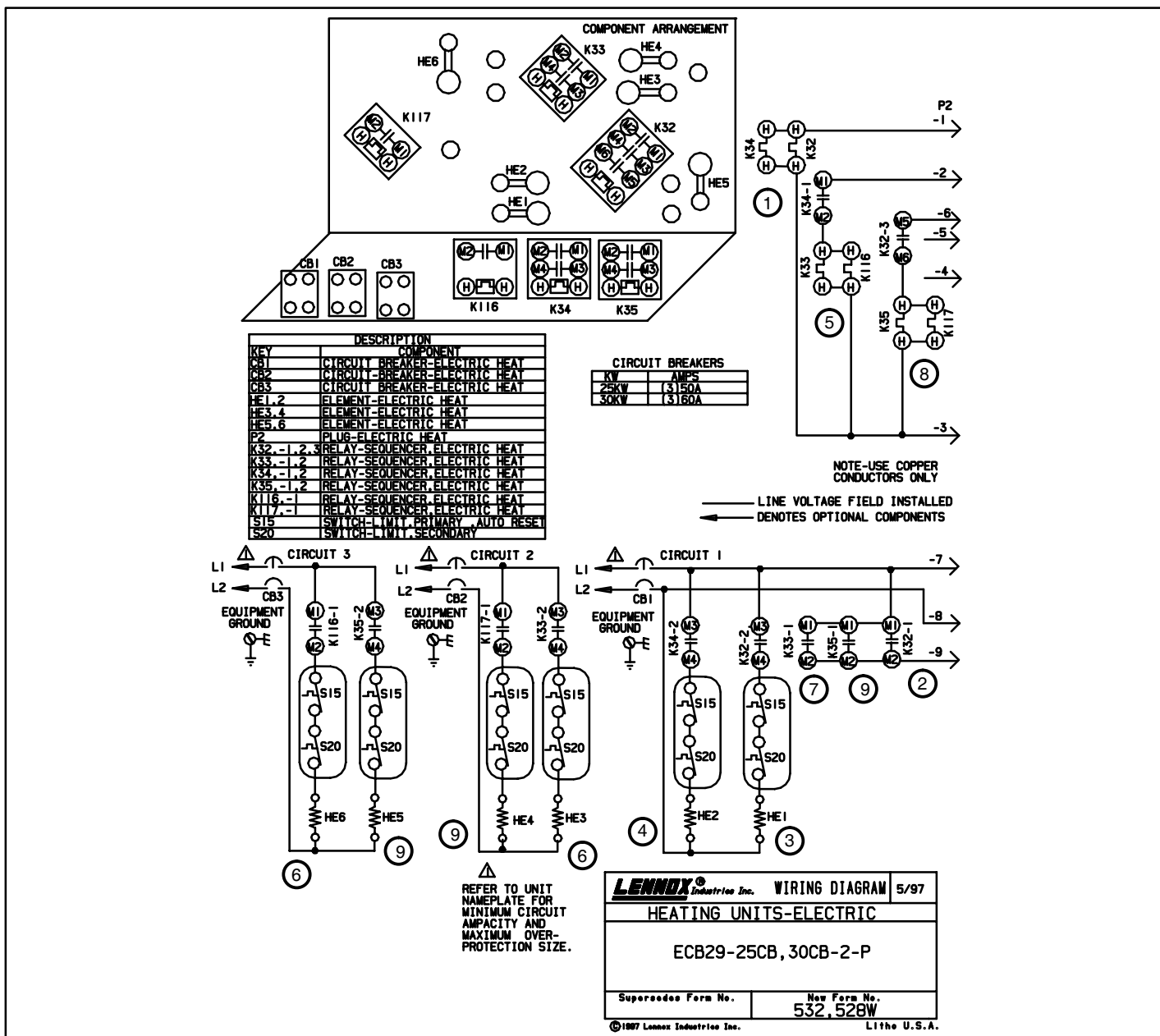
- 4- When K34-1 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relays K33 and K116 with 24VAC.

- 5- When K33-1 closes, the blower (if not energized) is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 6- When K33-2 and K116-1 close, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE3 and HE6 are energized.

THIRD STAGE HEAT

(remove jumper between W3 and R, if using third stage)

- 7- When K34-2 closes, the unit is ready for a third stage heat demand. W3, if available, of the thermostat sends a third stage heat demand, energizing the electric heat relay K35 with 24VAC.
- 8- When K35-1 and K35-2 close, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE4 and HE5 are energized.



N-ECB29-25CB, -30CB - 208/230V SINGLE PHASE - SEQUENCE OF OPERATION

FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32 and K34 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE1 is energized.
- 4- When K34-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE2 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

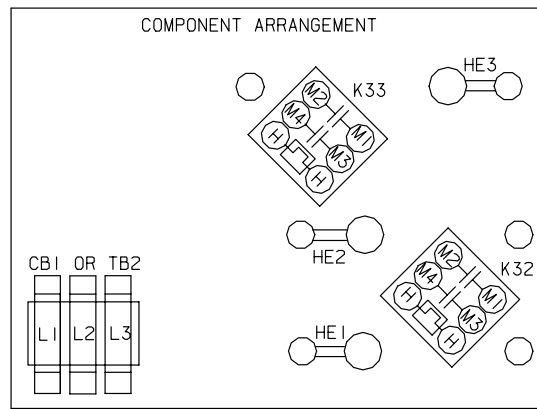
- 5- When K34-1 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relays K33 and K116 with 24VAC.

- 6- When K33-2 and K116-1 close, assuming primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE3 and HE6 are energized.
- 7- K33-1 closes and remains closed until second stage heat demand is satisfied.

THIRD STAGE HEAT

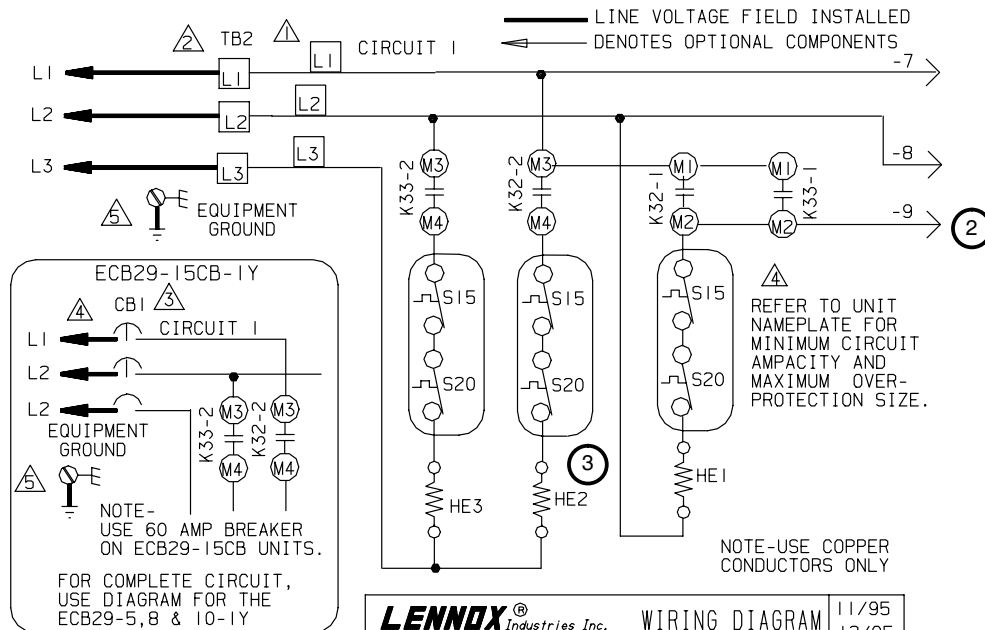
(remove jumper between W3 and R, if using third stage)

- 8- When K32-3 closes, the unit is ready for a third stage heat demand. W3, if available, of the thermostat sends a third stage heat demand, energizing the electric heat relays K35 and K117 with 24VAC.
- 9- When K35-2 and K117-1 close, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE4 and HE5 are energized. K35-1 closes until third stage heat demand is satisfied.



KEY	DESCRIPTION
CB1	CIRCUIT BREAKER-ELECTRIC HEAT
HE1,2,3	ELEMENT-ELECTRIC HEAT
P2	PLUG-ELECTRIC HEAT
K32,-1,2	RELAY-SEQUENCER,ELECTRIC HEAT
K33,-1,2	RELAY-SEQUENCER,ELECTRIC HEAT
S15	SWITCH-LIMIT,PRIMARY,AUTO RESET
S20	SWITCH-LIMIT,SECONDARY
TB2	TERMINAL BLOCK-ELECTRIC HEAT

CONNECT POWER WIRES FROM HEATER, LABELED L1, L2, L3 TO TB2 TERMINAL STRIP INSIDE INDOOR UNIT.



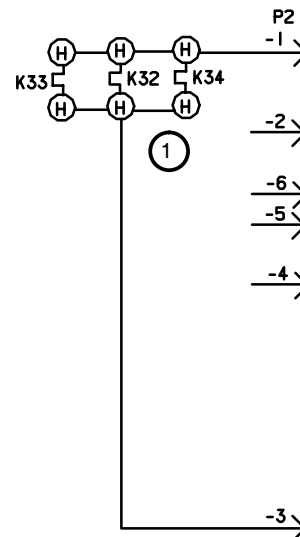
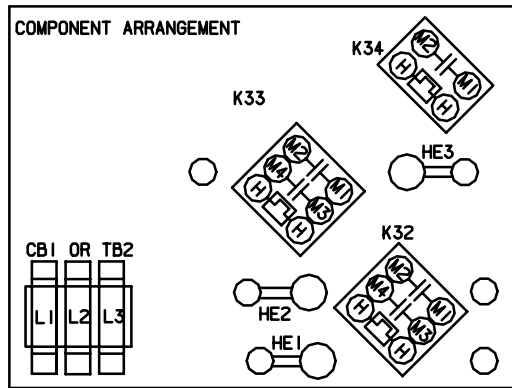
LENNOX [®] Industries Inc.	WIRING DIAGRAM	11/95 12/95
HEATING UNITS-ELECTRIC		
ECB29-5, 8, 10-1-Y ECB29-15CB-1-Y		
Supersedes Form No.	New Form No. 531,706W	

©1995 Lennox Industries Inc.

Litho U.S.A.

O-ECB29-5, -8, -10, -15CB - 208/230V THREE PHASE - SEQUENCE OF OPERATION

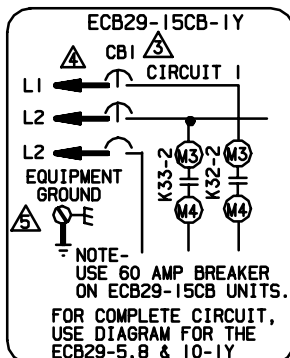
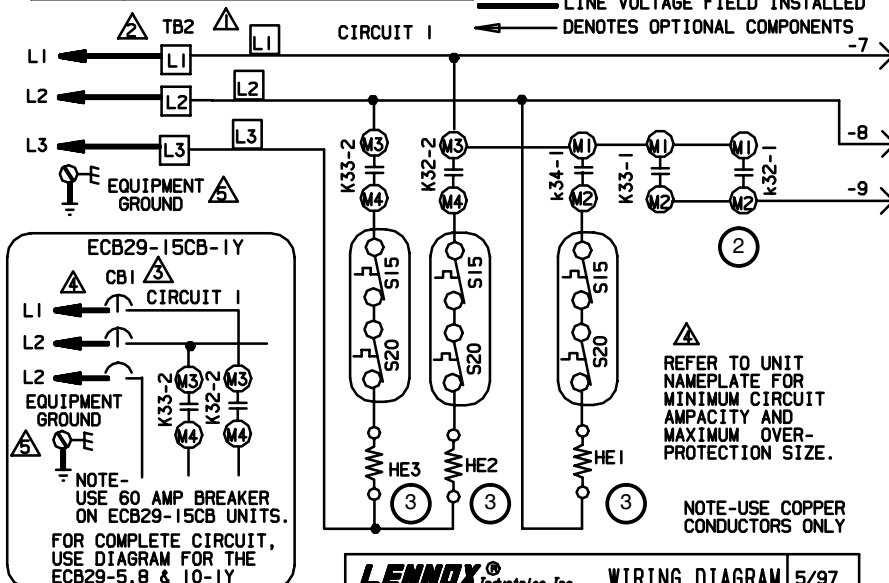
- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32 and K33 with 24VAC.
- When K32-1 and/or K33-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- When K32-1, K32-2, and K33-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE1, HE2, and HE3 are energized.



KEY	DESCRIPTION
CB1	CIRCUIT BREAKER-ELECTRIC HEAT
HE1,2,3	ELEMENT-ELECTRIC HEAT
P2	PLUG-ELECTRIC HEAT
K32, -1,2	RELAY-SEQUENCER, ELECTRIC HEAT
K33, -1,2	RELAY-SEQUENCER, ELECTRIC HEAT
K34, -1	RELAY-SEQUENCER, ELECTRIC HEAT
S15	SWITCH-LIMIT, PRIMARY, AUTO RESET
S20	SWITCH-LIMIT, SECONDARY
TB2	TERMINAL BLOCK-ELECTRIC HEAT

CONNECT POWER WIRES FROM HEATER, LABELED L1, L2, L3 TO TB2 TERMINAL STRIP INSIDE INDOOR UNIT.

— LINE VOLTAGE FIELD INSTALLED
— DENOTES OPTIONAL COMPONENTS

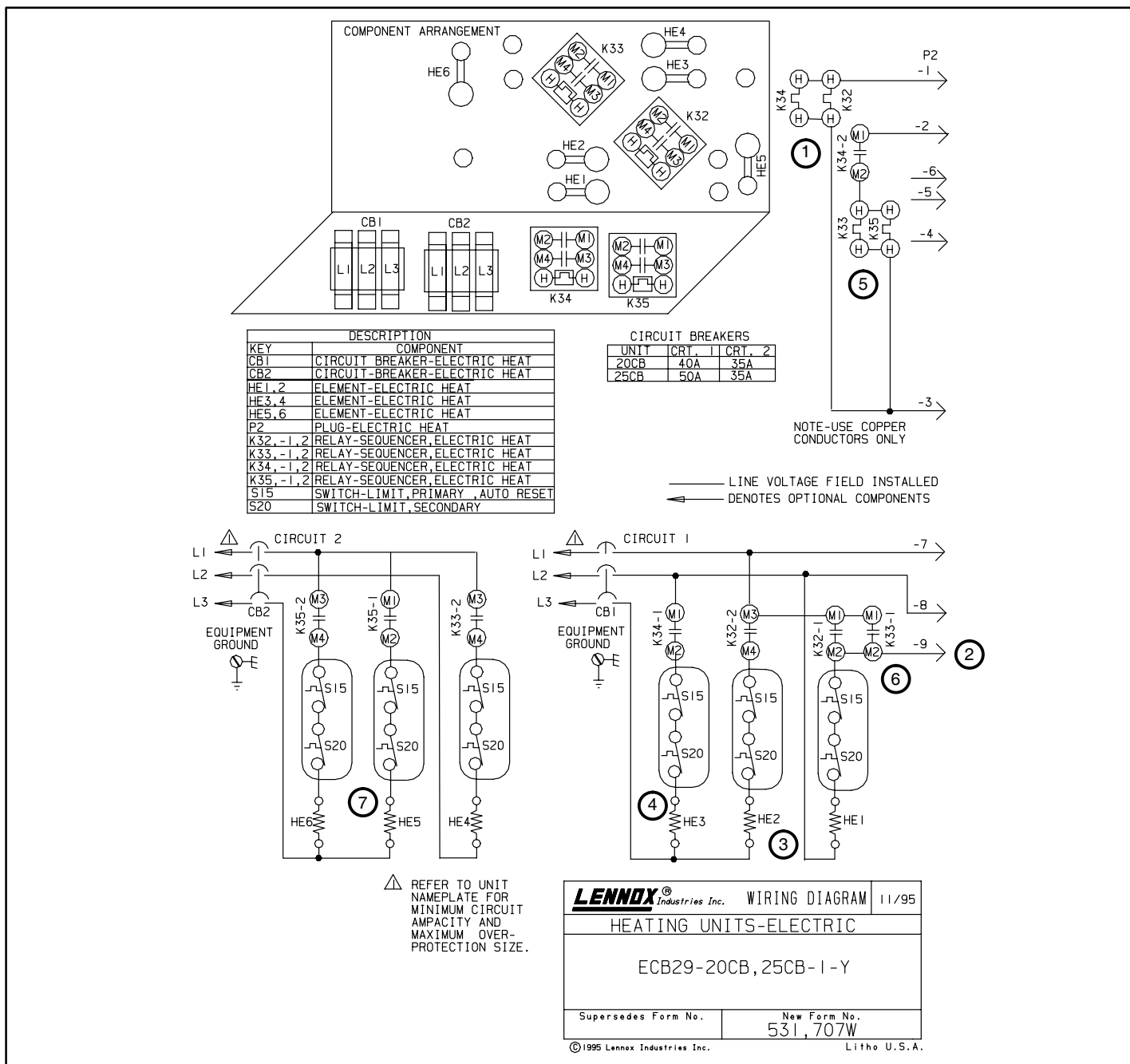


- △ TB2 USED ON 5, 8 & 10KW HEATERS ONLY
- △ CB1 USED ON 15KW HEATER ONLY
- △ EQUIPMENT GROUND LOCATED IN INDOOR UNIT

LENNOX [®] Industries Inc.	WIRING DIAGRAM 5/97
HEATING UNITS-ELECTRIC	
ECB29-8, 10-2-Y ECB29-15CB-2-Y	
Supersedes Form No.	New Form No. 532, 529W
©1997 Lennox Industries Inc.	Litho U.S.A.

P-ECB29-5, -8, -10, -15CB - 208/230V THREE PHASE - SEQUENCE OF OPERATION

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32, K33 and K34 with 24VAC.
- 2- When K32-1 and/or K33-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-2, K33-2 and K34-1 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE1, HE2, and HE3 are energized.



Q-ECB29-20CB, -25CB - 208/230V THREE PHASE - SEQUENCE OF OPERATION

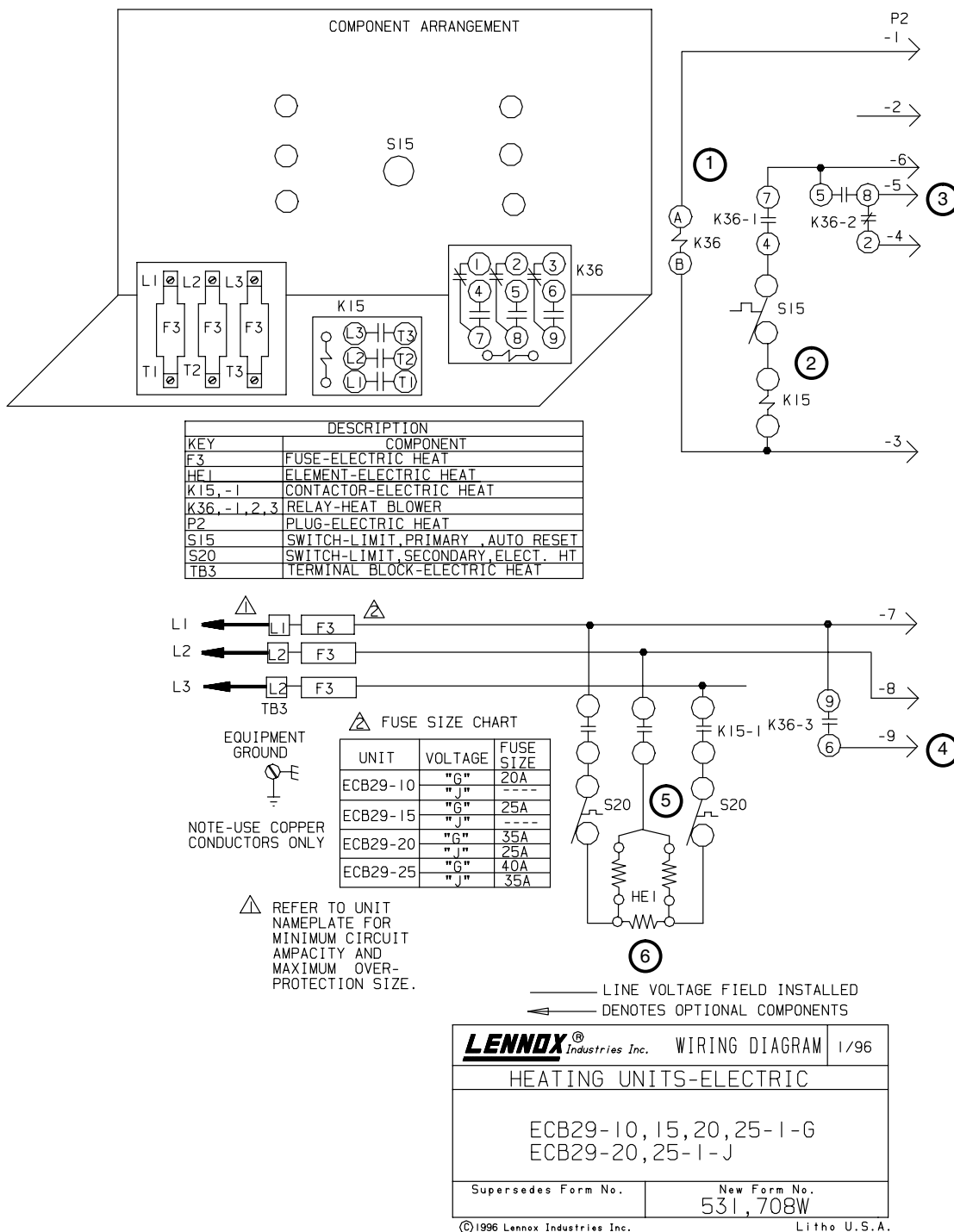
FIRST STAGE HEAT

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relays K32 and K34 with 24VAC.
- 2- When K32-1 closes, the blower is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 3- When K32-1 and K32-2 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE1 and HE2 are energized.
- 4- When K34-1 closes, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat element HE3 is energized.

SECOND STAGE HEAT

(remove jumper between W2 and R)

- 5- When K34-2 closes, the unit is ready for a second stage heat demand. W2 of the thermostat sends a second stage heat demand, energizing the electric heat relays K33 and K35 with 24VAC.
- 6- When K33-1 closes, the blower (if not energized) is energized on heating speed and economizer heat relay K43 is energized (see 208/230VAC CB schematic).
- 7- When K33-1, K35-1, and K35-2 contacts close, assuming the N.C. primary (S15) and secondary (S20) limit switches are closed, electric heat elements HE4, HE5, and HE6 are energized.



R-ECB29-10, 15, 20, 25 - 460V and 575V THREE PHASE - SEQUENCE OF OPERATION

- 1- When there is a call for heat, W1 of the thermostat energizes the electric heat relay K36 with 24VAC.
- 2- When K36-1 closes, assuming the N.C. primary limit (S15) is closed, electric heat contactor K15 is energized with 24VAC.
- 3- The economizer, if used, is energized after K36-2 closes.
- 4- When K36-3 closes, the blower is energized on heating speed (see 208/230VAC CB schematic).
- 5- When K15-1 contacts close, assuming the N.C. secondary (S20) limit switches are closed, electric heat element HE1 is energized.
- 6- If one of the secondary limit switches (S20) should open, one of the three heating elements of HE1 will remain energized.